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SURFACE WATER TEMPERATURES

AT TIDE STATIONS

PACIFIC COAST

NORTH AND SOUTH AMERICA

AND PACIFIC OCEAN ISLANDS

SPECIAL PUBLICATION NO. 280

FIFTH EDITION

(WITH DATA THROUGH 1955)

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WASHINGTON

U. S. DEPARTMENT OF COMMERCE
SINCLAIR WEEKS, Secretary
COAST AND GEODETIC SURVEY
H. ARNOLD KARO, Director

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Contents

	Page
Introduction	1
Index map	2
List of stations	4
Table 1. Surface water temperatures - monthly and yearly means and extremes	6
Table 2. Sea water temperatures from recording thermometers - monthly means and extremes	70
Mean temperature curves	71
Table 3. Conversion of Fahrenheit to centigrade	74

Introduction

The summaries of sea water temperatures presented in this publication are based on observations made in Pacific harbor and coastal waters through the year 1955. The temperatures were observed primarily at tide stations which, in the United States and possessions, were maintained by the Coast and Geodetic Survey, often with the cooperation of other organizations. The data for six places on the California coast, namely, La Jolla, Balboa, Port Hueneme, Pacific Grove, North Farallon Island and Blunts Reef Lightship, were supplied by the Scripps Institution of Oceanography. The data for places in Chile were supplied by the Departamento de Navegación é Hidrografía, Republica de Chile, and for the Philippine Islands by the Bureau of Coast and Geodetic Survey of the Republic of the Philippines. For other countries, the Coast and Geodetic Survey derived the data from observations made by organizations in the countries concerned. In Latin America the observations were obtained through the cooperation of the Inter American Geodetic Survey.

Table 1 presents monthly means and yearly mean and extremes for each year of observations. For each station at which the series of observations covered two or more years, there are also given the following monthly values for the series: the mean of the monthly means, the maximum observed, the mean of the monthly maxima, the mean of the monthly minima, and the minimum observed.

When an asterisk accompanies an annual extreme in either of the two right hand columns of Table 1, it indicates that the extreme might have been exceeded if observations had been available for all months in which the maximum or minimum normally occurs. If observations are not available for any month in which the yearly maximum or minimum might occur, the extreme has been omitted.

These data are based upon thermometer readings made in a sample of water drawn by bucket from a foot or two below the surface. The observations are usually made once each weekday at whatever time the observer attends the tide gage, and it may be assumed that in the course of a month or a year the distribution of observations is fairly uniform over all phases of the tide.

The monthly temperature summaries given in Table 2 are from records of recording thermometers. The thermometer bulb at each station was at a fixed position just below the lowest observed low water, so that during a day it was covered by varying amounts of tidal water. The instrument record is in the form of a continuous trace. The maximum and minimum observed values represent the highest and lowest points of the trace, the mean values are from hourly tabulations.

The mean temperature curves are derived from the monthly means of Table 1 and show graphically the seasonal variations for many places.

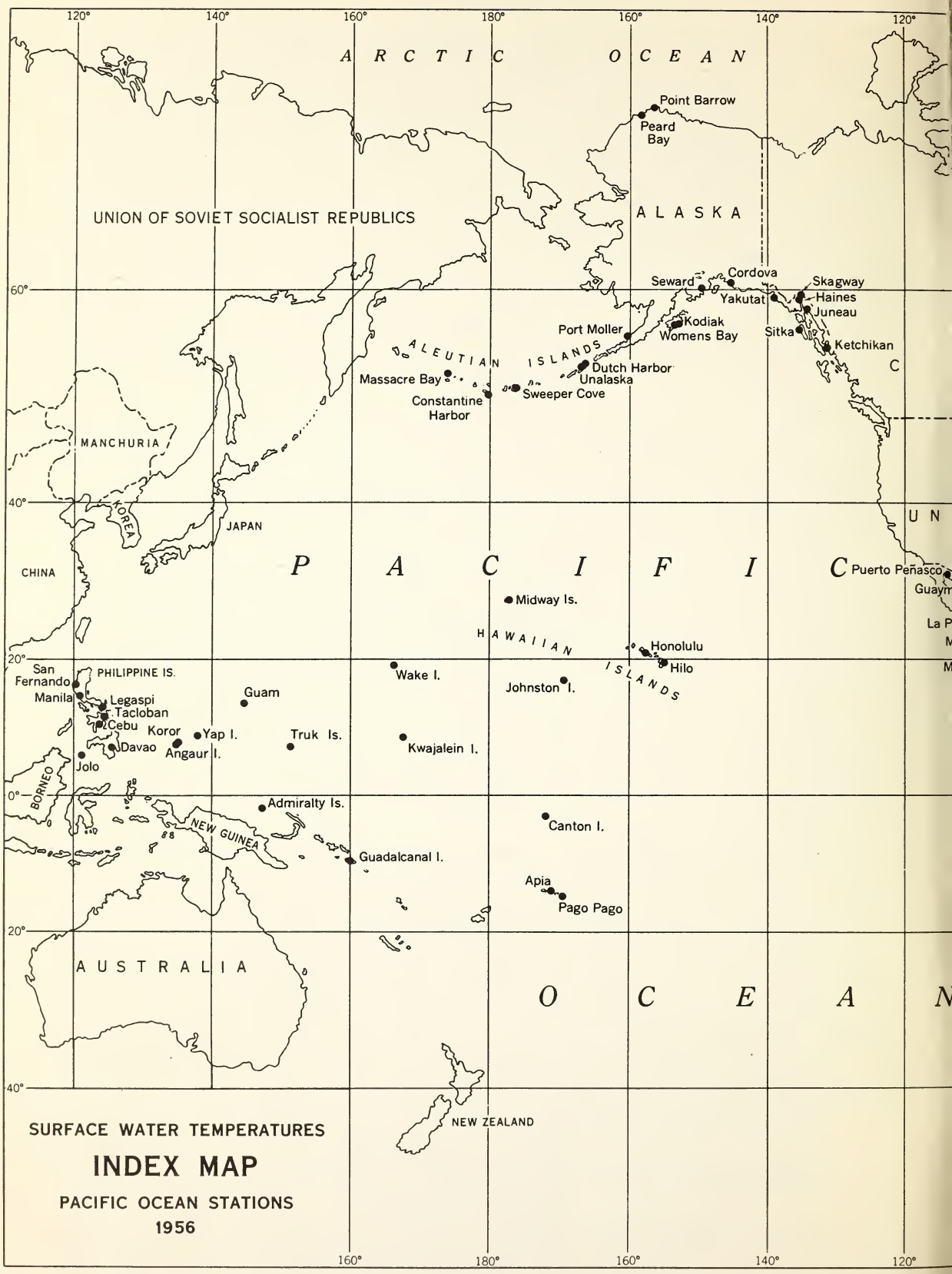
All temperatures in this publication are given in degrees Fahrenheit. They can be converted to the centigrade scale by means of Table 3.

The following publications complete this series:

Special Pub. No. 278. Surface Water Temperatures, Atlantic Coast, North and South America.

Special Pub. No. 279. Density of Sea Water, Atlantic Coast, North and South America.

Special Pub. No. 281. Density of Sea Water, Pacific Coast, North and South America and Pacific Ocean Islands.

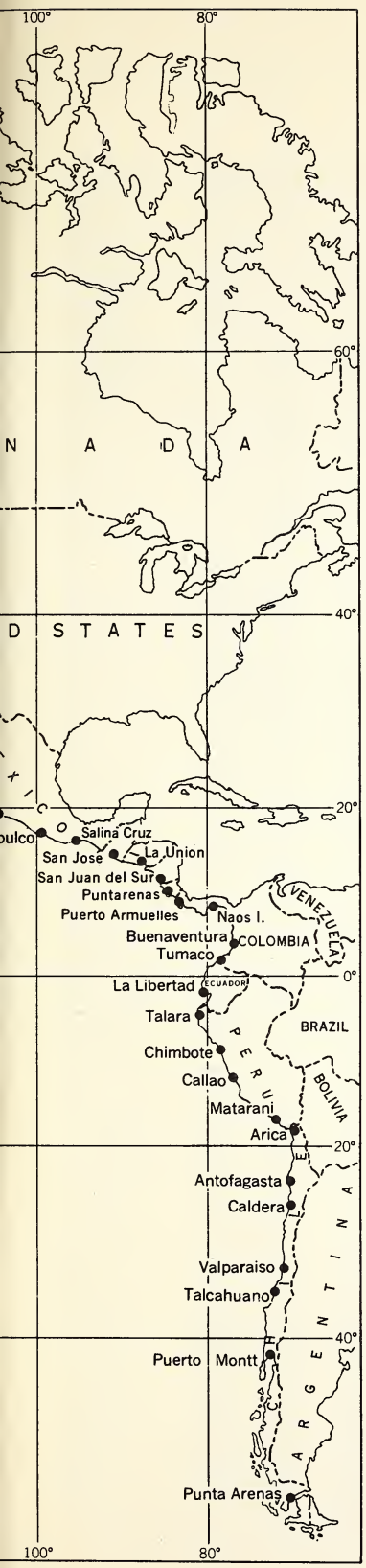


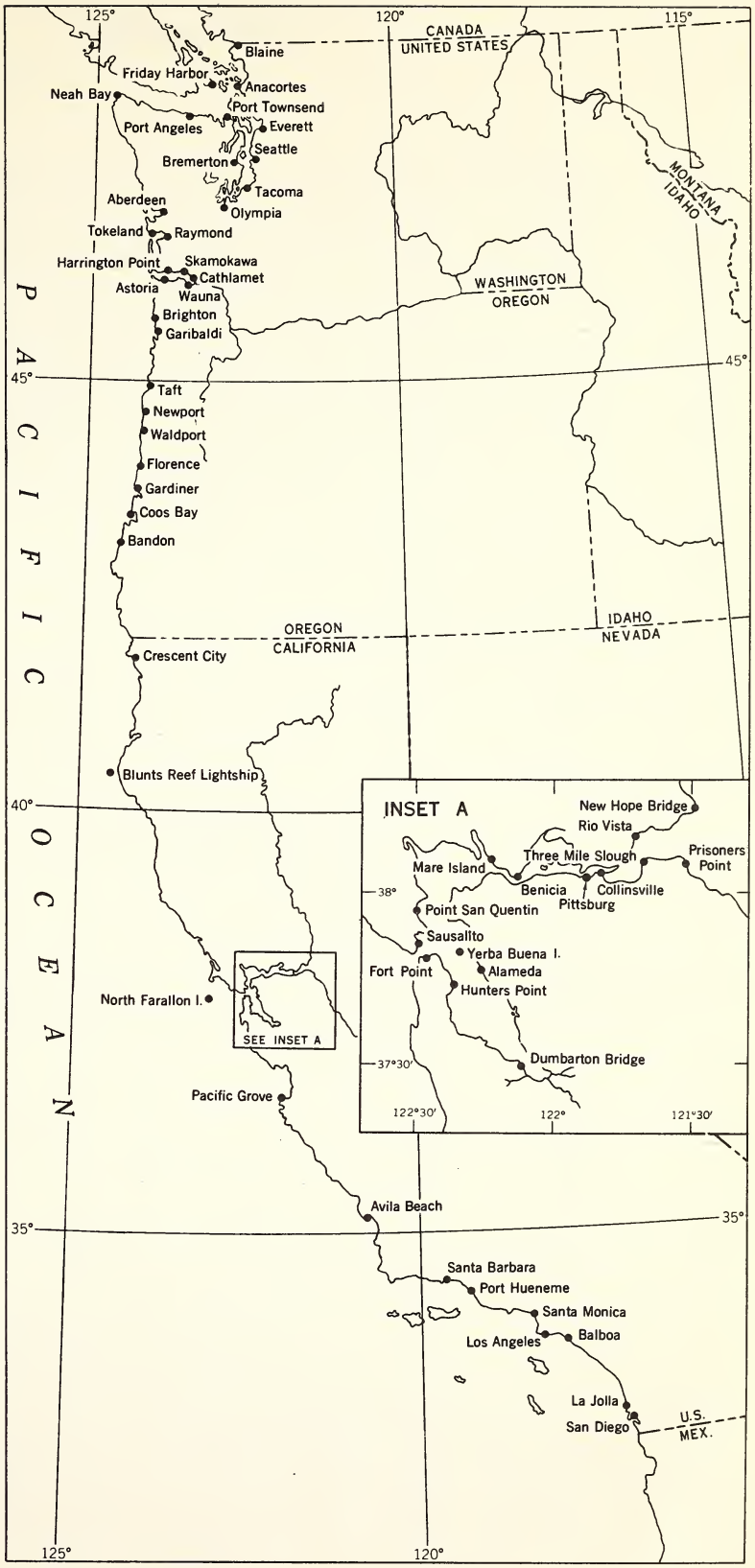
SURFACE WATER TEMPERATURES

INDEX MAP

PACIFIC OCEAN STATIONS

1956


100°
80°
60°
40°
20°
0°
20°
40°
N A D A
D STATES
Salina Cruz
San Jose
La Union
San Juan del Sur
Puntarenas
Puerto Armuelles
Naos I.
Buenaventura
COLOMBIA
Tumaco
VENEZUELA
La Libertad
ECUADOR
Talara
BRAZIL
Chimbote
Callao
P E R U
BOLIVIA
Matarani
Arica
Antofagasta
Caldera
Valparaiso
Talcahuano
Puerto Montt
A R G E N T I N A
Punta Arenas


125°
120°
115°
CANADA
UNITED STATES
Blaine
Friday Harbor
Anacortes
Neah Bay
Port Townsend
Port Angeles
Everett
Seattle
Bremerton
Tacoma
Aberdeen
Olympia
Tokeland
Raymond
Harrington Point
Skamokawa
Cathlamet
Astoria
Wauna
Brighton
Garibaldi
MONTANA
IDAHO
WASHINGTON
OREGON
45°
Taft
Newport
Waldport
Florence
Gardiner
Coos Bay
Bandon
P A C I F I C
O C E A N
OREGON
CALIFORNIA
IDAHO
NEVADA
Crescent City
Blunts Reef Lightship
40°
INSET A
New Hope Bridge
Rio Vista
Three Mile Slough
Prisoners Point
Mare Island
Benicia
Collinsville
Pittsburg
38°
Point San Quentin
Sausalito
Yerba Buena I.
Fort Point
Alameda
Hunters Point
North Farallon I.
SEE INSET A
37°30'
Dumbarton Bridge
Pacific Grove
122°30'
122°
121°30'
Avila Beach
35°
Santa Barbara
Port Hueneme
Santa Monica
Los Angeles
Balboa
La Jolla
San Diego
U.S.
MEX.

List of Stations

Station	Lat. ° ′	Long. ° ′	Page
Aberdeen, Grays Harbor, Wash.	46 58N.	123 51W.	29
Acapulco, Mexico	16 51N.	99 55W.	67,73
Admiralty Islands (Seeadler Harbor)	2 02S.	147 23E.	49
Alameda, Calif.	37 47N.	122 18W.	19,71
Anacortes, Wash.	48 31N.	122 37W.	33
Angaur Island, Palau Islands	6 54N.	134 08E.	51
Antofagasta, Chile	23 39S.	70 25W.	59,73
Apia (observatory), Samoa Islands	13 48S.	171 46W.	48,72
Arica, Chile	18 29S.	70 20W.	59
Astoria (Tongue Point), Ore.	46 13N.	123 46W.	26,71
Avila Beach, Calif.	35 10N.	120 44W.	14,70,71
Balboa, Calif.	33 36N.	117 54W.	9,71
Bandon, Coquille River, Ore.	43 07N.	124 25W.	24
Benicia, Carquinez Strait, Calif.	38 03N.	122 08W.	21
Blaine, Wash.	49 00N.	122 46W.	34
Blunts Reef Lightship	40 26N.	124 30W.	22,71
Bremerton, Wash.	47 34N.	122 38W.	30
Brighton, Nehalem River, Ore.	45 40N.	123 56W.	25
Buenaventura, Colombia	3 54N.	77 05W.	63
Caldera, Chile	27 04S.	70 50W.	58
Callao (La Punta), Peru	12 04S.	77 11W.	61
Callao (Naval Arsenal), Peru	12 03S.	77 09W.	61,73
Canton Island, Phoenix Islands	2 48S.	171 43W.	47,72
Cathlamet, Columbia River, Wash.	46 12N.	123 23W.	27
Cebu, Cebu Island, Philippine Islands	10 18N.	123 54E.	54,73
Chimbote, Peru	9 05S.	78 36W.	61
Collinsville, Sacramento River, Calif.	38 04N.	121 51W.	21
Constantine Harbor, Amchitka Island, Alaska	51 25N.	179 17E.	43
Coos Bay entrance, Ore.	43 21N.	124 19W.	25
Cordova, Alaska	60 33N.	145 46W.	39,72
Crescent City, Calif.	41 45N.	124 12W.	23,71
Davao, Mindanao Island, Philippine Islands	7 05N.	125 38E.	54,73
Dumbarton Bridge, San Francisco Bay, Calif.	37 30N.	122 07W.	20
Dutch Harbor, Amaknak Island, Alaska	53 54N.	166 32W.	42,72
Everett, Wash.	47 59N.	122 13W.	30
Florence, Siuslaw River, Ore.	43 58N.	124 06W.	25
Friday Harbor, San Juan Island, Wash.	48 33N.	123 00W.	33,70,72
Gardiner, Umpqua River, Ore.	43 44N.	124 07W.	25
Garibaldi, Tillamook Bay, Ore.	45 33N.	123 54W.	25
Guadalcanal I. (Kukum), Solomon Islands	9 26S.	160 00E.	49
Guam (Apra Harbor), Marianas	13 26N.	144 39E.	52,73
Guaymas, Mexico	27 55N.	110 55W.	68,73
Haines, Alaska	59 14N.	135 26W.	37
Harrington Point, Columbia River, Wash.	46 16N.	123 39W.	27
Hilo, Hawaiian Islands	19 44N.	155 03W.	46,72
Honolulu, Hawaiian Islands	21 18N.	157 52W.	45,72
Johnston Island, Hawaiian Islands	16 45N.	169 31W.	47,72
Jolo, Jolo Island, Philippine Islands	6 04N.	121 00E.	55,73
Juneau, Alaska	58 18N.	134 25W.	36,72
Ketchikan, Alaska	55 20N.	131 38W.	34,72
Kodiak, Kodiak Island, Alaska	57 47N.	152 24W.	41
Koror, Koror Island, Palau Islands	7 21N.	134 29E.	51
Kwajalein Island, Marshall Islands	8 44N.	167 44E.	50,72
La Jolla, Calif.	32 52N.	117 15W.	6,71
La Libertad, Ecuador	2 13S.	80 55W.	62
La Paz, Mexico	24 10N.	110 19W.	69,73
La Unión, El Salvador	13 20N.	87 49W.	66,73
Legaspi, Luzon Island, Philippine Islands	13 09N.	123 45E.	53,73
Los Angeles (Outer Harbor), Calif.	33 43N.	118 16W.	10,71
Manila, Luzon Island, Philippine Islands	14 35N.	120 58E.	52,73
Manzanillo, Mexico	19 03N.	104 20W.	68
Mare Island Strait, Calif.	38 06N.	122 16W.	21
Massacre Bay, Attu Island, Alaska	52 50N.	173 12E.	43,72

List of Stations -*Continued*

Station	Lat. ° ′	Long. ° ′	Page
Matarani, Peru	17 00S.	72 07W.	60,73
Mazatlán, Mexico	23 11N.	106 26W.	68
Midway Islands, Hawaiian Islands	28 12N.	177 22W.	45,72
Naos Island, Canal Zone	8 55N.	79 32W.	64,73
Neah Bay, Wash.	48 22N.	124 37W.	29,71
New Hope Bridge, Mokelumne River, Calif.	38 14N.	121 29W.	22
Newport, Yaquina Bay, Ore.	44 38N.	124 03W.	25
North Farallon Island, Calif.	37 46N.	123 06W.	16,71
Olympia, Wash.	47 03N.	122 54W.	32
Pacific Grove, Calif.	36 38N.	121 55W.	15,71
Pago Pago, Samoa Islands	14 17S.	170 41W.	48,72
Peard Bay, Alaska	70 48N.	158 28W.	44
Pittsburg, New York Slough, Calif.	38 02N.	121 53W.	21
Point Barrow (Elson Lagoon), Alaska	71 23N.	156 27W.	45
Point Barrow (ocean), Alaska	71 23N.	156 27W.	44
Point San Quentin, San Francisco Bay, Calif.	37 57N.	122 29W.	21
Port Angeles, Wash.	48 08N.	123 26W.	30
Port Hueneme, Calif.	34 09N.	119 12W.	12,71
Port Moller, Alaska	55 59N.	160 34W.	44
Port Townsend (Fort Worden), Wash.	48 08N.	122 46W.	30
Port Townsend (town), Wash.	48 07N.	122 45W.	30
Puerto Armuelles, Panama	8 16N.	82 52W.	64
Puerto Montt, Chile	41 29S.	72 58W.	56,73
Puerto Peñasco, Mexico	31 19N.	113 35W.	69,73
Prisoners Point, San Joaquin River, Calif.	38 04N	121 33W.	21
Punta Arenas, Magellan Strait, Chile	53 09S.	70 54W.	56,73
Puntarenas, Costa Rica	9 58N.	84 50W.	65,73
Raymond, Willapa Bay, Wash.	46 41N.	123 45W.	28,71
Rio Vista, Sacramento River, Calif.	38 09N.	121 42W.	22
Salina Cruz, Mexico	16 10N.	95 12W.	67
San Diego, Calif.	32 42N.	117 14W.	6,71
San Fernando, Luzon Island, Philippine Islands	16 37N.	120 18E.	52
San Francisco (Fort Point), Calif.	37 48N.	122 28W.	17,71
San Francisco (Hunters Point), Calif.	37 44N.	122 22W.	19,71
San José, Guatemala	13 55N.	90 50W.	66,73
San Juan del Sur, Nicaragua	11 15N.	85 53W.	65
Santa Barbara, Calif.	34 25N.	119 41W.	14
Santa Monica, Calif.	34 00N.	118 30W.	11,71
Sausalito, Calif.	37 51N.	122 29W.	20,71
Seattle (Duwamish River), Wash.	47 32N.	122 19W.	32
Seattle (Elliott Bay), Wash.	47 36N.	122 20W.	31,72
Seward, Alaska	60 06N.	149 27W.	40,72
Sitka, Alaska	57 03N.	135 20W.	35,72
Skagway, Alaska	59 27N.	135 19W	38,72
Skamokawa, Columbia River, Wash.	46 16N.	123 27W.	27
Sweeper Cove, Adak Island, Alaska	51 51N.	176 39W.	42,72
Tacloban, Leyte Island, Philippine Islands	11 15N.	125 00E.	53
Tacoma, Wash.	47 17N.	122 25W.	32
Taft, Siletz Bay, Ore.	44 56N.	124 01W.	25
Talara, Peru	4 35S.	81 17W.	62,73
Talcahuano, Chile	36 41S.	73 06W.	57
Three Mile Slough, San Joaquin River, Calif.	38 05N.	121 41W.	21
Tokeland, Willapa Bay, Wash.	46 42N.	123 58W.	28,71
Truk Islands (Moen Island), Caroline Islands	7 27N.	151 51E.	50,73
Tumaco, Colombia	1 50N.	78 44W.	63
Unalaska, Unalaska Island, Alaska	53 53N.	166 32W.	42
Valparaiso, Chile	33 02S.	71 38W.	58,73
Wake Island	19 17N.	166 37E.	49,72
Waldport, Alsea Bay, Ore.	44 26N.	124 04W.	25
Wauna, Columbia River, Ore.	46 10N.	123 24W.	27
Womens Bay, Kodiak Island, Alaska	57 43N.	152 31W.	41,72
Yakutat, Alaska	59 33N.	139 44W.	38,72
Yap Island, Caroline Islands	9 30N.	138 08E.	51
Yerba Buena Island, San Francisco Bay, Calif.	37 49N.	122 22W.	18

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Table 1. — Surface Water Temperatures

Means and Extremes in °F.

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Means	Max.	Min.
							SAN DIEGO, CALIF.								
1922	55.4	54.5	56.0	57.6	60.6	62.4	66.7	68.0	66.9	61.9	57.7	58.3	60.5	72	51
1923	56.8	56.3	58.1	60.3	63.0	63.0	66.6	67.8	65.7	65.1	63.0	57.9	62.0	70	52
1924	56.8	58.6	59.2	59.9	63.9	64.2	66.9	66.0	63.1	61.2	57.7	55.9	61.1	70	53
1925	55.9	57.4	59.7	59.4	62.6	66.4	68.8	67.5	64.6	63.9	60.4	60.4	62.2	72	54
Mean	56.2	56.7	58.2	59.3	62.5	64.0	67.2	67.3	65.1	63.0	59.7	58.1	61.4		
Max.	59	61	63	65	68	70	72	72	71	68	64	64		72	
Mean Max.	58.6	59.1	61.1	63.0	66.9	67.1	70.7	70.9	68.7	66.3	61.7	60.8			
Mean Min.	53.2	54.3	56.1	56.1	58.3	58.9	62.4	62.6	60.4	60.2	58.1	56.0			
Min.	52	51	53	54	56	55	60	61	58	57	55	53			51
							LA JOLLA, CALIF.- surface								
1917	53.3	54.8	56.5	58.5	61.2	65.7	70.4	70.7	67.5	64.2	61.3	60.0	62.0	74	52
1918	57.0	55.8	57.7	59.2	63.5	67.6	69.8	70.7	68.4	67.1	63.5	58.6	63.2	73	54
1919	58.1	57.3	56.6	60.6	63.3	65.7	70.1	68.4	65.1	64.6	60.7	57.9	62.4	73	50
1920	56.8	57.4	58.1	58.6	61.2	67.3	66.4	70.2	66.0	62.7	59.5	56.7	61.7	73	54
1921	55.8	55.6	58.0	57.5	61.7	65.3	70.5	67.3	65.8	63.4	61.7	58.3	61.7	74	54
1922	56.5	55.9	56.3	57.2	61.4	65.8	69.0	70.1	67.7	62.1	58.9	59.2	61.7	73	53
1923	57.6	56.5	57.9	60.9	62.6	64.9	68.4	71.2	69.3	66.2	64.1	60.3	63.3	72	54
1924	58.3	59.2	59.3	60.1	64.3	65.3	66.7	68.4	63.4	61.5	58.0	57.0	61.8	72	54
1925	55.4	55.9	57.6	58.8	62.1	66.0	69.6	69.6	65.5	63.5	61.3	61.2	62.2	73	54
1926	60.1	60.8	62.8	64.6	65.8	68.7	68.5	69.4	65.5	63.7	61.9	59.4	64.1	73	57
1927	57.4	57.2	57.2	58.3	61.0	64.4	67.6	68.2	66.9	63.9	63.3	59.2	62.0	71	53
1928	58.3	57.6	58.8	58.8	63.1	65.3	67.1	67.6	64.4	63.0	59.9	57.9	61.8	71	54
1929	56.8	55.6	56.5	57.9	63.5	65.5	70.2	71.1	67.8	65.1	62.1	60.6	62.7	74	54

1930	58.3	58.5	58.8	61.9	63.0	65.7	66.7	70.7	67.5	64.6	63.5	61.0	63.4	74	56
1931	59.9	60.8	62.2	64.4	66.2	67.8	74.5	73.9	68.2	65.8	61.7	57.4	65.0	78	54
1932	55.9	55.8	58.6	58.6	61.0	66.2	66.9	65.7	65.5	63.3	61.2	57.2	61.3	70	54
1933	55.4	54.7	56.3	58.8	59.7	63.1	65.7	66.2	62.6	63.0	59.7	57.0	60.2	70	53
1934	55.9	57.0	60.3	63.1	66.6	66.2	68.7	68.7	68.9	64.0	62.4	59.7	63.5	72	54
1935	57.9	57.2	55.9	59.0	63.7	65.8	68.0	69.3	66.7	63.0	59.5	58.5	62.0	74	53
1936	57.2	58.3	59.2	57.6	64.6	64.2	72.1	71.8	69.6	65.3	63.0	61.0	63.6	75	53
1937	56.1	55.6	57.6	58.8	63.9	66.4	69.3	69.1	68.9	63.9	62.4	59.5	62.6	72	54
1938	59.0	57.9	58.3	59.2	62.1	64.0	66.4	69.6	68.0	62.6	58.1	58.6	62.0	72	55
1939	57.4	53.6	55.8	59.9	61.9	64.9	69.3	70.3	66.9	66.6	64.8	63.3	62.9	72	51
1940	60.4	59.4	59.0	61.7	65.5	64.6	64.9	69.1	66.6	65.5	60.8	61.0	63.2	72	57
1941	60.1	60.3	62.2	62.6	64.4	66.0	66.0	68.0	66.6	65.3	63.1	60.3	63.7	71	57
1942	57.7	57.0	57.7	59.9	62.2	65.5	68.2	69.1	65.8	66.4	62.2	58.8	62.5	72	56
1943	57.4	58.1	60.3	58.8	63.3	64.9	64.4	71.2	65.7	64.8	61.9	60.1	62.6	73	56
1944	57.6	56.8	58.1	59.5	61.3	64.6	64.4	67.1	66.4	63.9	61.5	58.5	61.6	70	56
1945	57.6	57.2	55.6	56.8	60.6	65.5	68.0	70.5	68.5	65.3	59.4	57.7	61.9	73	52
1946	55.4	55.0	56.5	61.0	63.7	67.3	68.7	70.2	66.0	65.3	60.3	57.9	62.3	74	52
1947	56.1	56.8	58.8	60.3	64.4	66.4	66.7	68.0	67.1	65.8	60.4	57.4	62.4	74	54
1948	56.3	55.6	56.1	58.6	62.4	63.0	65.1	67.6	66.7	62.4	59.9	56.7	60.9	70	54
1949	54.1	54.9	56.1	57.9	63.3	67.1	68.2	69.4	68.4	63.3	60.4	57.6	61.7	72	52
1950	55.0	55.4	57.0	60.3	60.3	63.5	68.9	66.4	66.7	64.4	61.5	58.8	61.5	72	53
1951	55.8	56.3	57.2	60.8	61.9	65.5	68.2	67.5	63.9	64.9	62.1	58.8	61.9	72	54
1952	56.7	56.5	56.3	59.7	62.8	63.5	64.6	69.6	64.6	63.1	59.7	58.5	61.3	74	54
1953	57.2	55.8	56.5	58.3	60.4	62.8	69.1	69.3	63.7	63.7	60.6	57.7	61.3	74	52
1954	57.4	57.7	57.4	59.2	61.8	65.1	70.2	70.3	66.4	62.2	61.5	58.9	62.3	75	54
1955	56.1	55.4	57.8	57.5	61.4	64.6	67.3	70.6	69.1	63.1	60.3	56.8	61.7	74	53
Mean	57.1	56.9	57.9	59.6	62.7	65.4	68.1	69.3	66.6	64.2	61.2	58.8	62.3		
Max.	64	67	65	68	70	73	78	78	76	70	69	65		78	
Mean Max.	58.7	58.4	60.1	62.2	65.5	68.4	71.6	72.3	70.2	67.1	63.9	60.9			
Mean Min.	55.6	55.3	55.8	56.5	58.8	61.3	63.2	65.1	62.1	61.0	58.6	56.7			
Min.	52	51	52	53	54	57	57	59	57	57	50	53			50

Table 1.—Surface Water Temperatures—*Continued*

Means and Extremes in °F.

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Means	Max.	Min.
							LA JOLLA, CALIF.- bottom								
1927	57.5	57.2	57.1	57.6	58.9	62.3	63.3	-- -	64.0	63.0	63.0	59.4	-- -	69*	52
1928	58.5	57.5	58.5	57.9	62.4	64.5	64.1	65.2	64.0	62.6	60.0	58.1	61.1	70	54
1929	56.8	55.6	56.4	57.5	62.7	64.2	67.6	66.5	66.9	63.8	61.5	60.4	61.7	73	53
1930	58.2	58.1	58.1	61.0	61.9	64.1	63.6	68.3	64.8	64.0	63.1	61.0	62.2	74	54
1931	59.8	60.7	61.8	64.0	63.8	66.2	71.6	70.5	64.8	63.7	61.5	57.2	63.8	77	55
1932	56.1	56.5	57.9	57.5	59.4	63.6	64.4	62.8	63.0	61.9	60.4	57.0	60.0	67	52
1933	55.0	54.6	55.4	58.1	58.9	60.1	62.0	60.8	59.5	60.9	58.6	56.9	58.4	69	52
1934	55.8	56.9	59.2	61.9	65.0	65.2	66.8	64.4	67.1	62.7	62.2	59.6	62.2	71	54
1935	57.8	57.0	55.2	57.6	61.9	64.4	63.3	64.0	62.2	61.0	59.0	58.5	60.2	70	53
1936	57.0	58.3	58.9	56.6	63.4	61.4	66.6	68.0	67.0	64.4	62.9	60.8	62.1	73	52
1937	56.0	55.5	57.2	57.5	63.5	65.7	65.7	65.7	67.1	62.2	62.2	59.4	61.5	71	53
1938	58.9	57.7	58.0	58.3	59.7	61.6	61.7	66.1	-- -	60.3	57.6	58.5	-- -	72*	53
1939	57.5	53.4	55.6	58.4	59.4	63.1	66.0	67.1	63.9	66.1	64.5	63.2	61.5	71	51
1940	60.4	59.3	58.8	61.3	64.7	63.2	61.7	65.2	65.4	-- -	60.3	61.0	-- -	70	56
1941	60.3	60.2	62.2	62.2	62.4	63.0	62.9	64.5	64.1	65.1	63.1	59.8	62.5	70	56
1942	57.8	57.1	57.8	59.4	61.8	65.1	65.2	66.7	63.9	66.0	62.4	59.0	61.8	71	56
1943	57.5	58.2	59.7	57.4	60.9	63.0	60.4	68.6	63.3	63.6	62.0	60.4	61.2	73	54
1944	57.7	56.9	58.1	59.1	60.4	63.8	62.2	64.7	65.2	63.0	61.6	58.6	60.9	69	55
1945	57.6	57.3	55.5	55.7	58.3	64.5	65.6	68.4	66.2	64.4	58.8	57.7	60.8	72	52
1946	55.6	55.2	56.5	60.3	63.0	66.6	66.4	65.7	62.6	64.6	60.3	58.1	61.2	71	53
1947	56.5	56.8	58.6	59.5	64.0	64.9	63.1	64.9	63.9	64.2	60.3	57.6	61.2	72	55
1948	56.5	55.8	56.1	58.1	61.9	61.2	62.8	65.3	64.6	61.9	60.1	57.0	60.1	70	53
1949	54.5	55.0	56.1	57.4	62.6	65.7	65.1	68.2	66.0	-- -	60.4	57.7	-- -	71	53
1950	55.2	55.4	56.8	59.9	59.2	62.8	66.9	64.4	65.8	62.6	61.2	58.5	60.7	71	53
1951	55.6	55.8	56.7	60.3	60.1	64.0	65.3	63.9	62.1	63.0	61.7	58.6	60.6	71	53
1952	56.7	56.3	55.9	58.3	61.0	60.1	59.5	65.5	61.2	61.3	59.4	58.3	59.5	70	52
1953	57.2	55.6	56.3	57.7	59.5	61.5	67.1	66.6	62.4	63.0	60.4	57.6	60.4	73	52
1954	57.6	57.6	57.0	58.1	61.0	64.2	68.8	69.2	65.3	61.6	61.2	58.7	61.7	73	54

1955	56.1	-- -	-- -	-- -	-- -	63.5	64.7	66.8	66.2	62.6	60.1	56.7	-- -	73	55*
Mean	57.2	56.8	57.6	58.9	61.5	63.6	64.6	66.0	64.4	63.1	61.0	58.8	61.1		
Max.	62	62	64	67	70	74	77	75	72	69	66	65		77	
Mean Max.	58.8	58.1	59.8	61.9	65.1	67.4	69.9	70.8	68.8	66.3	63.6	60.9			
Mean Min.	55.8	55.2	55.2	55.2	56.0	57.8	58.3	59.6	58.8	59.0	58.2	56.9			
Min.	53	51	52	52	52	52	52	55	54	55	54	55			51
BALBOA, CALIF.															
1925	55.1	55.7	56.6	56.4	60.5	65.0	67.2	65.9	63.5	63.3	61.0	61.5	61.0	72	53
1926	60.3	60.9	62.2	64.4	64.1	66.5	66.5	70.0	65.0	64.5	61.9	59.7	63.8	71	57
1927	57.0	57.3	56.6	58.2	59.4	62.3	64.5	64.1	66.9	63.6	63.1	59.8	61.1	70	54
1928	-- -	-- -	-- -	-- -	62.5	64.2	65.4	67.0	63.6	61.9	59.7	57.9	-- -	70	56*
1929	-- -	56.1	56.0	57.3	62.6	64.3	68.9	68.2	64.9	62.8	61.7	60.5	-- -	72	53*
1930	58.1	58.4	58.3	61.2	60.4	64.0	66.2	70.1	66.8	64.3	61.8	61.6	62.6	74	56
1931	60.8	60.4	61.5	64.5	66.0	67.0	73.9	69.8	65.6	65.0	61.4	58.2	64.5	77	56
1932	55.9	55.9	58.6	58.3	60.8	63.5	65.3	64.7	64.9	63.2	61.6	57.0	60.8	67	53
1933	55.1	54.6	55.6	57.4	57.0	62.8	64.5	65.7	61.2	61.7	59.0	56.7	59.3	69	53
1934	56.8	57.4	60.2	61.9	64.9	64.2	67.4	65.7	66.2	64.4	61.5	60.1	62.6	70	56
1935	57.8	56.9	55.5	57.7	61.8	65.8	65.2	67.6	64.1	62.4	59.3	58.8	61.1	72	52
1936	57.3	58.5	58.0	56.9	63.0	64.3	68.6	67.8	66.8	65.4	63.9	61.5	62.7	72	52
1937	56.6	55.8	57.8	59.3	63.4	65.4	64.5	67.1	65.7	64.2	62.4	60.1	61.9	73	53
1938	59.5	58.3	58.4	59.2	60.2	64.2	63.4	67.2	65.2	63.5	58.6	59.5	61.4	71	54
1939	57.4	54.0	56.0	59.3	60.5	62.9	66.6	67.2	66.4	67.8	66.1	63.9	62.3	71	51
1940	61.3	59.8	59.7	62.6	64.1	62.1	63.2	66.1	66.3	65.8	61.6	61.0	62.8	69	57
1941	60.6	60.7	62.5	61.8	65.0	66.1	65.3	67.2	66.0	65.9	63.5	60.4	63.8	70	57
1942	57.9	57.3	57.9	60.0	61.3	66.2	66.8	66.9	65.6	66.1	62.0	58.9	62.2	70	55
1943	57.8	58.2	59.4	58.7	62.5	64.0	63.6	69.9	64.3	65.2	62.2	60.9	62.2	73	54
1944	57.5	57.4	58.7	57.9	59.9	62.4	62.7	66.1	65.3	62.5	62.2	58.4	60.9	71	54
1945	57.7	57.8	56.0	57.1	60.8	64.4	65.8	67.6	66.8	64.4	59.1	58.3	61.3	71	53
1946	56.3	55.9	56.4	60.7	60.7	66.4	68.0	67.4	66.3	65.5	60.6	58.7	61.9	71	53
1947	56.6	57.2	59.1	60.6	63.0	66.1	66.4	68.5	66.2	64.9	60.0	57.6	62.2	73	54
1948	56.2	55.0	55.9	57.7	62.3	62.1	64.4	64.7	65.1	62.1	59.1	56.8	60.1	69	53
1949	53.8	54.2	55.3	57.9	62.9	66.3	66.1	66.6	65.5	62.4	61.0	56.8	60.7	70	52

* Data are incomplete for the part of year in which this extreme occurs. This value is from the months shown.

Table 1.—Surface Water Temperatures—*Continued*

Means and Extremes in °F.

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Means	Max.	Min.
							BALBOA, CALIF. —Continued								
1950	54.6	55.1	56.9	59.1	57.5	61.8	65.6	64.7	65.9	63.9	61.9	59.6	60.6	69	50
1951	55.5	56.2	56.0	59.1	59.0	62.7	65.9	64.1	62.2	64.2	62.3	57.5	60.4	70	51
1952	55.8	56.1	55.3	58.8	60.8	62.0	61.2	65.1	61.2	60.7	59.6	58.1	59.6	69	54
1953	56.7	55.4	55.1	56.8	56.8	62.0	66.5	65.5	61.4	63.8	60.6	58.3	59.9	73	51
1954	57.3	58.0	56.9	59.4	58.7	60.3	64.2	63.1	61.3	57.0	56.2	55.9	59.0	68	52
1955	56.3	54.5	57.8	55.4	60.4	61.5	64.6	63.7	64.2	60.0	59.7	56.2	59.5	70	52
Mean	57.2	57.0	57.7	59.2	61.4	64.0	65.8	66.6	64.9	63.6	61.1	59.0	61.5		
Max.	64	62	65	67	68	70	77	74	73	69	68	66		77	
Mean Max.	58.9	58.8	59.8	61.9	64.3	66.8	69.4	70.3	68.4	66.2	63.5	61.1			
Mean Min.	55.3	55.0	55.2	55.9	57.5	60.1	61.0	62.4	61.0	60.5	58.7	56.8			
Min.	51	50	51	52	52	54	54	57	54	55	54	52			50
							LOS ANGELES (Outer Harbor), CALIF.								
1924	55.4	58.3	57.7	57.6	61.5	62.2	64.8	64.8	62.2	59.0	56.1	54.9	59.5	68	51
1925	53.6	55.8	55.6	55.9	60.6	64.0	66.9	66.2	63.5	63.1	59.5	59.9	60.4	71	51
1926	58.6	59.9	62.1	63.7	62.6	65.7	66.9	69.1	64.9	64.2	61.7	59.2	63.2	73	56
1927	57.9	59.0	57.9	59.7	61.9	63.0	66.9	67.3	68.7	65.8	64.4	59.9	62.7	71	56
1928	57.4	57.7	59.4	58.1	62.6	64.4	65.7	67.8	64.8	62.6	59.7	57.6	61.5	70	54
1929	56.7	55.8	56.1	57.6	62.2	65.5	67.6	68.5	66.0	64.4	61.9	60.3	61.9	71	54
1930	57.0	58.5	58.6	62.4	61.3	65.1	66.4	70.0	66.9	65.1	61.9	59.7	62.7	72	55
1931	59.2	61.2	62.6	64.9	66.6	67.6	72.1	69.4	66.0	64.9	60.8	55.9	64.3	76	55
1932	55.0	55.0	58.8	58.8	60.6	62.6	65.1	64.2	65.1	63.3	61.5	55.9	60.5	67	53
1933	54.0	55.0	56.3	56.5	56.7	62.1	62.6	64.9	61.3	62.2	59.9	55.9	59.0	68	52
1934	56.7	57.6	60.6	62.1	64.9	63.5	67.1	65.1	65.7	63.9	60.6	57.9	62.1	69	55

1935	55.9	55.9	55.0	56.5	58.5	63.7	64.4	66.0	64.0	61.0	58.5	57.0	59.6	70	53
1936	56.5	56.7	57.4	55.2	61.0	62.1	67.8	67.6	66.0	64.6	62.2	58.8	61.3	71	53
1937	53.2	53.6	56.8	57.7	61.7	63.9	64.8	66.4	66.6	63.3	61.3	59.2	60.7	69	50
1938	58.0	56.7	56.5	57.2	58.5	62.8	63.0	67.6	66.0	62.2	56.7	58.5	60.3	71	52
1939	56.5	52.7	54.9	58.6	59.0	61.9	65.3	66.6	66.2	66.0	64.8	62.6	61.2	71	51
1940	59.9	59.0	58.1	60.6	62.2	61.3	62.8	66.2	65.1	64.8	60.4	59.5	61.6	69	57
1941	58.6	59.7	61.2	-- -	63.5	64.4	64.4	66.7	65.5	64.4	62.2	59.2	-- -	70	56*
1942	56.3	56.5	57.2	59.5	60.1	64.9	66.6	66.2	65.7	65.7	62.4	57.9	61.6	70	54
1943	55.8	57.2	59.0	58.8	60.6	62.6	63.9	68.5	64.9	64.9	61.0	58.8	61.3	71	54
1944	56.5	56.5	58.1	57.9	58.8	61.3	61.7	65.7	64.9	63.3	61.0	57.7	60.3	68	54
1945	56.5	56.8	54.9	55.6	58.3	62.2	64.6	68.2	66.0	63.3	58.8	56.1	60.1	70	52
1946	55.4	54.5	56.1	60.1	60.1	64.9	66.9	66.4	66.4	64.4	60.4	57.9	61.1	70	53
1947	55.2	57.6	59.2	60.3	62.8	65.7	66.0	67.6	66.7	65.1	59.9	57.6	62.0	70	54
1948	56.1	55.6	56.1	57.7	61.0	62.2	64.2	64.6	65.7	63.3	59.4	55.8	60.1	68	54
1949	52.3	53.8	55.4	58.0	62.4	65.2	66.1	66.7	66.1	62.8	61.4	57.3	60.6	70	51
1950	54.1	55.9	58.5	60.9	58.0	63.0	67.4	66.1	67.6	66.6	62.8	61.8	61.9	70	53
1951	57.6	57.3	58.5	61.0	60.6	63.8	66.8	66.0	65.2	66.0	64.4	59.4	62.2	70	55
1952	56.9	58.3	56.8	61.3	62.9	63.8	63.5	66.6	64.1	63.5	61.4	59.5	61.6	71	52
1953	59.2	58.8	58.1	59.7	59.5	63.1	66.9	66.3	63.6	63.5	60.9	57.1	61.4	73	55
1954	57.0	58.7	57.8	59.4	60.6	65.4	68.7	68.3	66.8	64.0	63.3	60.0	62.5	72	55
1955	56.6	56.3	60.2	57.8	60.0	62.9	65.0	64.8	65.7	61.4	60.8	57.4	60.7	70	54
Mean	56.4	56.9	57.9	59.1	61.0	63.6	65.7	66.8	65.4	63.8	61.0	58.3	61.3		
Max.	63	63	65	68	68	71	76	74	72	69	67	65		76	
Mean Max.	58.6	59.2	60.5	62.0	63.9	66.8	69.1	69.9	68.5	66.3	63.7	60.7			
Mean Min.	54.7	55.1	55.5	56.3	57.9	60.5	62.4	63.9	62.8	61.6	58.8	56.1			
Min.	50	51	52	51	54	56	58	61	59	56	55	51			50
SANTA MONICA, CALIF.															
1946	56.1	56.1	58.1	62.4	63.5	67.6	70.9	70.3	67.1	64.0	60.0	57.8	62.8	73	52
1947	55.9	57.6	59.0	59.6	61.9	66.3	66.3	68.1	66.4	63.7	58.2	56.9	61.7	71	54
1948	56.1	54.9	55.5	58.1	60.6	63.3	65.1	67.0	65.4	62.5	59.1	56.0	60.3	69	53
1949	52.8	54.3	56.3	58.9	62.4	65.0	66.7	66.7	65.2	60.6	60.4	56.8	60.5	70	51

* Data are incomplete for the part of year in which this extreme occurs. This value is from the months shown.

Table 1.—Surface Water Temperatures—*Continued*

Means and Extremes in °F.

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Means	Max.	Min.
							SANTA MONICA, CALIF. —Continued								
1950	54.1	54.7	56.6	58.9	58.1	61.4	66.6	65.4	65.5	63.1	60.2	59.1	60.3	70	53
1951	55.4	55.3	55.8	59.5	58.9	64.4	67.0	66.1	65.7	64.0	62.0	57.0	60.9	71	52
1952	55.5	56.1	55.2	58.0	60.6	61.5	62.5	65.5	64.1	62.7	59.1	57.3	59.8	68	54
1953	56.3	55.7	55.3	56.0	56.7	60.8	66.9	66.0	63.1	62.7	58.9	56.8	59.6	72	51
1954	56.4	57.3	56.5	57.7	58.7	63.4	67.9	68.3	66.0	60.5	60.0	57.7	60.9	71	54
1955	55.2	54.1	57.4	54.8	58.8	62.3	63.8	64.9	64.6	60.0	58.7	55.5	59.2	69	52
Mean	55.4	55.6	56.6	58.4	60.0	63.6	66.4	66.8	65.3	62.4	59.7	57.1	60.6		
Max.	61	59	61	65	67	73	73	72	71	67	64	61		73	
Mean Max.	57.0	57.3	59.1	60.9	63.3	66.7	69.6	69.5	68.2	64.8	61.9	59.1			
Mean Min.	53.6	53.8	54.2	55.4	56.6	60.0	62.7	63.8	62.7	60.1	57.6	55.2			
Min.	51	52	51	52	53	56	58	61	59	58	55	54			51
							PORT HUENEME, CALIF.								
1920	56.1	56.2	55.1	54.0	56.0	60.0	57.7	60.5	61.9	58.3	59.9	55.1	57.6	66	52
1921	55.1	54.2	55.4	53.1	57.6	60.1	-- -	-- -	-- -	-- -	-- -	-- -	-- -	65*	50*
1922	-- -	52.5	-- -	53.1	53.7	58.2	60.2	60.6	61.1	60.0	57.2	58.4	-- -	66	52*
1923	56.3	55.2	56.0	56.0	55.4	55.7	59.5	61.4	61.3	62.0	64.8	59.0	58.5	66	52
1924	56.0	58.1	56.6	55.9	59.6	57.1	57.1	56.7	58.3	58.7	55.2	54.8	57.0	64	50
1925	54.3	54.8	54.9	53.2	57.7	59.3	61.4	61.7	60.3	61.6	59.3	59.9	58.2	68	51
1926	60.1	59.0	61.0	62.7	58.5	60.1	61.6	65.8	63.9	62.0	60.6	58.2	61.1	71	54
1927	56.3	56.4	55.0	54.7	53.9	56.6	57.9	59.3	61.8	62.6	62.0	59.0	58.0	65	52
1928	57.3	57.0	56.8	53.8	58.1	58.4	57.9	62.1	60.9	59.2	56.9	56.7	57.9	65	51
1929	56.4	54.4	53.5	53.6	55.8	60.2	63.2	61.4	62.3	62.8	60.8	59.8	58.7	69	51

1930	57.1	57.3	56.4	58.6	55.3	60.7	59.2	65.4	62.3	62.2	59.9	60.0	59.5	68	52
1931	59.0	60.0	60.0	60.6	62.8	59.8	67.6	67.9	62.8	62.1	59.5	56.7	61.6	72	54
1932	54.6	55.1	56.0	54.7	55.8	57.9	61.4	61.4	62.6	61.2	60.5	55.8	58.1	65	51
1933	53.9	52.8	53.7	54.6	52.4	57.1	58.0	58.2	58.0	58.9	56.0	54.9	55.7	63	51
1934	55.5	56.4	56.7	57.0	59.5	57.3	61.3	60.3	61.6	60.4	58.5	58.2	58.6	67	53
1935	56.3	54.3	52.7	54.0	53.7	57.8	57.1	60.7	61.6	60.9	57.9	58.0	57.1	68	51
1936	56.0	56.4	55.4	54.2	56.9	58.4	62.6	63.2	63.8	64.4	62.5	60.3	59.5	68	52
1937	54.6	54.3	55.3	54.4	58.9	59.6	60.8	61.1	63.0	62.0	61.4	59.5	58.7	67	50
1938	58.7	57.4	55.8	55.1	55.0	57.6	58.8	63.6	63.9	60.1	56.4	58.2	58.4	69	52
1939	56.8	52.8	54.0	55.9	55.3	57.3	60.6	62.4	62.1	64.5	64.0	62.1	59.0	68	51
1940	59.6	58.0	56.9	55.5	56.5	55.5	57.0	61.0	62.7	62.3	59.7	60.3	58.8	67	51
1941	59.7	59.7	61.1	59.8	61.3	61.9	63.2	65.4	66.3	63.8	61.5	59.2	61.9	70	55
1942	56.6	56.3	56.3	58.8	57.4	63.4	63.3	64.9	64.6	63.7	58.4	57.3	60.1	68	53
1943	56.2	56.9	57.2	54.9	56.8	57.2	60.3	63.7	61.9	61.3	61.0	59.4	58.9	67	52
1944	57.1	54.9	56.2	54.6	56.7	57.0	58.5	61.3	61.7	61.3	58.7	57.1	57.9	68	52
1945	55.7	55.2	53.0	52.2	55.6	56.9	61.2	63.3	63.5	61.8	57.7	56.0	57.7	67	50
1946	54.4	54.2	55.2	57.3	56.9	58.9	63.2	61.2	61.4	61.6	59.5	57.4	58.4	66	52
1947	55.1	56.0	57.2	55.9	58.2	— -	58.8	60.5	60.7	62.1	58.6	57.2	-- -	64*	53*
1948	55.8	54.8	54.2	55.4	56.1	59.9	62.3	61.9	61.4	59.6	58.7	55.3	58.0	65	52
1949	52.0	52.6	54.0	55.5	58.6	59.1	61.3	60.9	61.9	58.7	59.5	55.9	57.5	66	50
1950	53.3	54.2	55.1	56.7	56.8	59.0	64.1	61.3	64.9	61.9	59.8	58.6	58.8	68	49
1951	54.9	53.9	55.6	58.2	57.3	61.6	63.2	63.1	64.0	62.7	62.1	56.9	59.5	68	50
1952	56.0	56.5	55.6	58.6	58.3	59.7	59.4	62.2	60.0	61.0	58.7	57.7	58.6	66	52
1953	56.4	56.1	55.4	56.1	56.0	59.6	63.5	63.5	60.2	61.4	59.1	56.4	58.6	68	52
1954	57.4	57.0	55.8	57.1	58.1	62.2	65.0	66.4	64.0	59.9	59.4	56.9	59.9	70	52
1955	54.6	53.4	57.3	55.2	57.1	58.2	60.7	60.7	60.8	59.6	57.9	55.0	57.6	66	50
Mean	56.1	55.7	55.9	55.9	56.9	58.8	60.8	62.1	62.1	61.3	59.5	57.7	58.6		
Max.	62	61	64	65	65	68	71	72	70	68	66	64		72	
Mean Max.	58.2	57.6	58.3	58.7	60.5	62.8	65.4	66.0	65.8	64.4	62.1	59.9			
Mean Min.	53.9	53.6	53.0	53.4	53.7	55.1	56.7	58.1	58.2	58.1	56.5	55.3			
Min.	49	50	50	50	51	51	53	50	54	53	52	51			49

* Data are incomplete for the part of year in which this extreme occurs. This value is from the months shown.

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Table 1.—Surface Water Temperatures—*Continued*

Means and Extremes in °F.

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Means	Max.	Min.
							SANTA BARBARA, CALIF.								
1930	— -	— -	56.5	60.1	56.5	62.4	63.1	67.3	64.8	61.2	58.5	57.7	— -	70	51*
1931	57.0	58.8	58.8	61.2	63.0	63.0	68.5	68.4	63.9	61.9	57.6	54.7	61.4	72	52
1932	52.5	53.1	56.8	56.1	57.4	60.8	— -	— -	— -	— -	— -	— -	— -	—	50*
Mean	54.8	56.0	57.4	59.1	59.0	62.1	65.8	67.8	64.4	61.6	58.0	56.2	60.2		
Max.	59	63	62	64	66	67	72	72	72	65	64	61		72	
Mean Max.	57.6	59.1	61.2	63.1	62.7	65.6	68.9	70.8	69.8	64.0	63.0	59.0			
Mean Min.	52.6	52.7	52.7	55.3	54.4	58.3	60.4	63.4	59.4	59.0	52.0	53.6			
Min.	50	50	52	50	51	57	58	63	58	59	52	52			50
							AVILA BEACH, CALIF.‡								
1945	— -	— -	— -	— -	— -	— -	59.4	60.6	59.7	59.4	56.5	53.8	— -	66*	52*
1946	53.1	52.9	51.4	53.6	54.5	54.7	59.7	59.2	58.5	57.7	55.8	55.2	55.5	64	50
1947	53.8	54.1	54.3	53.4	55.9	57.9	57.6	58.8	59.4	57.7	54.0	53.6	55.9	63	50
1948	53.6	52.5	51.3	53.4	52.6	57.2	58.2	60.0	58.7	57.4	55.2	53.0	55.3	64	49
1949	51.0	51.5	53.4	54.1	54.8	57.7	57.9	58.8	59.6	55.9	56.3	54.3	55.4	63	49
1950	52.3	51.6	51.7	53.6	53.7	55.5	58.6	58.4	58.6	56.5	57.1	55.9	55.3	61	49
1951	52.8	52.7	52.6	54.1	54.8	56.6	57.8	59.0	59.0	58.7	57.9	54.3	55.9	62	51
1952	53.8	54.3	53.1	— -	— -	— -	— -	58.4	58.6	57.1	55.7	54.7	— -	61*	50*
1953	54.1	52.3	53.5	52.3	52.9	54.3	58.5	59.8	59.6	57.2	55.3	53.3	55.3	61	50
1954	53.6	55.0	54.6	55.3	56.1	56.8	61.0	60.8	59.6	56.1	56.4	54.6	56.7	64	52
1955	52.7	52.5	53.6	52.1	53.4	55.2	56.0	57.6	57.5	56.5	54.7	53.9	54.6	61	49
Mean	53.1	52.9	53.0	53.5	54.3	56.2	58.5	59.2	59.0	57.3	55.9	54.2	55.6		
Max.	57	57	58	58	59	64	64	66	64	61	60	59		66	
Mean Max.	54.7	54.6	55.7	56.4	57.0	59.6	61.5	62.4	62.0	59.6	58.1	56.1			
Mean Min.	51.5	51.1	50.6	50.6	52.0	53.2	55.6	56.3	56.2	55.1	54.1	52.7			
Min.	50	49	49	49	50	50	54	54	54	52	52	52			49

PACIFIC GROVE, CALIF.

1920	52.8	53.3	54.0	53.7	53.1	55.4	56.5	56.9	57.3	55.3	53.6	52.7	54.5	60	50
1921	51.9	52.2	53.5	52.4	53.2	56.7	56.2	56.6	55.1	55.3	53.1	51.8	54.0	62	48
1922	50.9	51.3	52.2	51.7	52.8	55.8	56.5	53.7	55.1	54.9	52.0	52.1	53.2	59	47
1923	51.5	51.0	51.6	54.2	53.2	53.5	54.8	54.5	57.0	56.8	54.8	53.1	53.8	60	50
1924	51.1	53.5	52.2	51.9	53.4	55.3	54.1	53.7	54.8	53.0	51.5	50.3	52.9	58	48
1925	49.7	51.7	52.2	54.4	54.1	53.6	55.4	56.4	56.9	56.2	54.0	53.9	54.0	60	47
1926	54.1	54.5	55.1	57.2	55.0	53.8	54.1	53.5	55.2	54.2	54.7	52.6	54.5	59	50
1927	52.5	52.9	52.3	52.6	52.9	54.0	55.6	55.9	55.6	54.4	57.2	54.4	54.2	59	49
1928	54.0	53.9	55.8	54.4	53.6	54.0	55.0	54.2	54.6	54.6	54.1	53.3	54.3	58	50
1929	52.9	52.8	53.0	52.2	53.8	55.9	57.8	57.0	58.6	56.9	55.5	55.8	55.2	62	50
1930	54.7	55.5	56.2	57.7	55.9	56.0	56.1	57.1	58.6	57.1	54.4	55.8	56.3	61	52
1931	55.3	57.1	57.0	54.8	58.7	59.8	57.6	58.4	58.9	59.2	53.5	52.0	56.9	65	49
1932	51.7	51.1	52.7	52.8	55.7	55.9	56.7	56.0	60.8	58.2	54.8	53.7	55.0	62	50
1933	50.9	51.6	52.4	53.7	52.9	55.0	55.5	57.4	57.2	54.9	53.5	51.8	53.9	58	49
1934	52.6	53.9	56.0	56.0	55.4	55.7	57.1	57.1	57.4	57.5	57.1	55.4	55.9	59	52
1935	53.7	54.1	53.2	53.3	54.8	55.6	56.1	56.8	57.3	56.6	53.5	54.4	55.0	60	51
1936	53.9	53.4	54.8	54.4	56.9	59.3	55.1	56.8	58.2	57.7	56.8	56.2	56.1	64	50
1937	52.5	51.9	53.8	53.9	53.4	57.7	58.2	57.6	56.8	58.0	56.3	56.0	55.5	61	49
1938	55.1	54.8	55.3	53.9	55.0	55.7	58.9	58.8	56.5	57.3	53.7	54.8	55.8	62	51
1939	53.7	51.5	51.3	53.8	55.3	54.9	56.8	58.9	59.5	58.5	56.9	57.5	55.7	63	50
1941	56.9	56.7	57.8	57.8	59.3	57.5	58.3	59.4	59.7	57.1	58.4	57.5	58.0	63	53
1942	55.4	55.5	54.2	55.2	55.5	54.8	57.5	57.0	58.5	55.5	54.6	53.2	55.6	61	51
1943	52.9	54.4	56.5	54.9	53.7	56.4	57.9	56.8	58.8	57.1	56.0	55.5	55.9	60	50
1944	54.8	53.6	53.4	53.9	55.0	56.4	58.4	56.2	56.5	57.5	57.1	55.0	55.6	61	52
1945	54.1	54.5	51.7	51.7	55.3	56.2	59.3	57.0	58.2	58.6	56.9	54.2	55.6	62	50
1946	52.6	52.2	52.0	54.2	55.4	57.4	57.2	57.2	57.1	56.2	54.1	54.4	55.0	62	50
1947	52.2	53.2	55.0	55.6	56.2	58.2	58.1	58.4	58.3	57.0	53.1	53.6	55.7	63	50
1948	53.5	52.9	52.2	55.0	56.0	57.5	58.0	58.3	56.5	56.0	54.0	51.9	55.2	61	51
1949	50.4	51.4	53.8	54.0	56.2	57.8	56.9	57.5	57.4	55.1	55.3	53.2	54.9	61	49

* Data are incomplete for the part of year in which this extreme occurs. This value is from the months shown.

‡ For temperatures from recording thermometer, see Table 2.

Table 1.—Surface Water Temperatures—*Continued*

Means and Extremes in °F.

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Means	Max.	Min.
							PACIFIC GROVE, CALIF. —Continued								
1950	51.6	52.4	53.4	53.7	53.5	56.7	57.5	58.0	57.9	55.5	57.5	56.2	55.3	61	49
1951	51.8	52.9	52.1	53.3	54.9	56.2	56.8	57.6	58.2	57.4	56.6	55.0	55.2	60	50
1952	53.5	53.9	52.9	54.0	54.5	55.9	58.4	55.6	56.0	55.8	54.6	55.0	55.0	61	51
1953	54.2	51.5	52.0	52.6	55.0	56.3	56.3	56.6	60.0	56.4	55.2	52.8	54.9	62	49
1954	53.4	53.9	54.2	55.9	55.7	55.1	56.4	57.1	57.3	56.0	55.2	53.9	55.3	61	51
1955	52.4	52.0	53.5	53.0	54.3	56.0	54.7	55.5	55.7	55.4	52.9	53.1	54.0	60	50
Mean	53.0	53.2	53.7	54.1	54.8	56.1	56.7	56.7	57.4	56.4	54.9	54.1	55.1		
Max.	58	58	59	61	63	64	62	63	63	65	60	60		65	
Mean Max.	54.6	54.5	55.2	56.3	57.5	59.0	59.4	59.2	59.7	59.0	56.9	55.9			
Mean Min.	51.2	51.7	52.0	51.8	52.2	53.2	53.9	54.3	54.9	53.7	52.8	52.1			
Min.	47	47	49	49	49	50	51	51	52	51	49	48			47
							NORTH FARALLON ISLAND, CALIF.								
1926	54.4	55.7	55.6	56.5	54.0	52.6	53.1	53.9	55.1	54.9	55.8	54.4	54.7	59	51
1927	53.1	53.2	51.0	50.4	50.4	51.9	53.1	55.4	53.9	52.7	56.3	54.0	53.0	58	48
1928	53.7	53.9	55.0	51.6	50.8	51.8	53.0	52.2	53.3	52.9	55.3	52.2	53.0	58	49
1929	51.3	50.8	49.5	49.6	50.1	53.0	53.9	54.3	55.4	54.8	52.7	54.7	52.5	58	47
1930	52.4	53.6	53.8	54.9	50.7	51.8	52.9	54.9	58.1	55.2	53.6	53.4	53.8	61	49
1931	54.2	55.1	53.7	51.4	53.5	55.3	54.0	54.8	56.2	54.2	52.5	52.1	53.9	58	49
1932	51.5	50.2	51.6	50.9	52.7	52.4	54.0	54.6	55.9	55.8	53.3	51.7	52.9	59	48
1933	49.9	49.7	50.3	50.7	51.6	52.6	53.8	54.4	54.6	53.6	52.3	50.4	52.0	57	49
1934	52.0	52.7	54.7	52.4	53.1	53.7	54.1	54.6	54.9	55.7	56.2	52.6	53.9	58	51
1935	52.4	52.4	51.1	52.6	53.4	52.5	53.8	53.9	55.5	55.9	52.3	53.7	53.3	58	48
1936	52.8	52.7	51.7	51.9	53.3	56.1	53.8	53.9	56.5	57.2	55.6	54.1	54.1	61	46
1937	50.4	50.8	52.9	51.9	51.9	56.4	56.8	55.8	57.0	58.5	55.8	55.9	54.5	62	49
1938	53.6	54.1	54.2	52.7	52.4	53.6	55.3	56.3	56.0	57.0	53.4	53.9	54.4	61	50
1939	53.3	50.4	51.2	51.7	53.0	52.3	52.7	55.5	57.3	57.9	55.4	56.7	54.0	61	48

1940	55.4	55.9	55.7	54.6	53.3	53.8	56.5	55.7	60.7	58.1	56.9	56.0	56.0	66	50
1941	56.8	— -	57.1	54.7	56.7	55.5	55.1	58.0	58.2	55.1	57.3	57.0	— -	64	46
1942	54.5	54.2	52.1	52.8	51.2	51.1	53.6	55.1	56.2	55.7	54.2	54.8	53.8	59	48
—															
1955	— -	50.7	50.6	49.7	49.6	50.4	50.0	52.1	53.0	52.8	50.6	52.2	— -	56	48*
Mean	53.0	52.7	52.9	52.3	52.3	53.2	53.9	54.7	56.0	55.4	54.4	53.9	53.7		
Max.	59	57	59	59	59	61	60	64	66	62	61	58		66	
Mean Max.	54.8	54.1	54.8	54.6	54.4	55.8	56.2	57.0	58.9	57.6	56.5	55.6			
Mean Min.	51.5	51.4	50.4	49.8	50.4	50.7	51.3	52.9	53.8	53.4	52.1	51.4			
Min.	49	48	46	46	48	48	49	50	51	50	48	48			46
SAN FRANCISCO (Fort Point), CALIF.															
1922	49.5	49.1	51.3	51.6	54.9	57.0	59.2	58.3	59.0	58.3	53.4	51.2	54.4	61	47
1923	50.7	49.7	51.4	54.9	54.9	55.8	58.5	59.2	61.0	59.4	56.7	52.2	55.4	63	48
1924	49.1	53.1	54.1	54.4	56.7	59.2	59.2	59.5	60.8	58.1	55.2	50.4	55.8	62	47
1925	48.9	52.3	53.8	55.2	56.1	57.7	58.3	59.7	60.8	59.2	56.1	53.4	56.0	62	48
1926	50.5	54.1	56.3	59.2	57.7	57.6	59.0	59.4	59.7	58.8	57.9	52.9	56.9	61	49
1927	51.4	52.5	52.7	52.7	54.5	56.3	57.8	59.5	58.8	56.7	56.7	53.8	55.3	61	50
1928	52.0	53.6	55.8	54.7	55.0	56.8	58.1	58.5	58.3	57.2	54.9	50.2	55.4	60	47
1929	48.6	49.6	51.4	52.2	54.1	57.4	60.1	60.1	60.6	59.4	55.4	54.0	55.2	62	47
1930	51.1	53.8	55.0	57.7	55.4	57.2	58.1	60.1	61.0	59.9	55.4	51.4	56.3	63	48
1931	52.2	54.5	56.3	55.4	59.4	61.2	60.6	60.4	60.6	59.4	55.8	50.4	57.2	63	49
1932	50.0	49.1	53.2	54.3	56.5	56.7	58.8	59.2	61.0	59.4	55.2	51.1	55.4	62	45
1933	48.2	49.5	52.2	53.6	53.4	55.4	57.6	59.5	59.4	58.8	55.6	50.9	54.5	61	47
1934	50.7	52.3	55.6	55.6	57.0	58.6	59.5	59.8	60.1	60.4	58.2	53.2	56.8	63	50
1935	51.2	52.2	52.0	54.8	55.9	57.3	57.6	58.4	58.6	59.0	52.9	52.0	55.2	61	49
1936	52.3	52.0	54.0	54.0	57.0	60.1	58.1	59.4	60.8	59.5	55.6	52.7	56.3	63	50
1937	48.2	48.4	52.9	53.6	54.3	58.3	60.3	60.4	59.7	59.9	57.4	54.7	55.7	62	45
1938	52.0	51.1	53.4	53.6	55.2	57.2	58.1	59.4	58.5	58.3	53.6	51.8	55.2	61	49
1939	51.3	50.2	50.5	53.4	56.1	57.9	58.6	61.7	62.2	61.3	57.2	55.2	56.3	64	49

* Data are incomplete for the part of year in which this extreme occurs. This value is from the months shown.

Table 1.—Surface Water Temperatures—*Continued*

Means and Extremes in °F.

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Means	Max.	Min.
							SAN FRANCISCO (Fort Point), CALIF. —Continued								
1940	53.2	54.9	56.1	56.8	57.0	58.6	60.8	60.3	62.8	60.4	56.1	53.2	57.5	64	50
1941	53.2	54.3	56.3	56.3	58.3	57.9	59.9	60.6	61.0	58.1	57.2	54.9	57.3	63	52
1942	51.4	52.2	52.9	54.7	54.3	55.2	57.7	58.5	-- -	-- -	-- -	-- -	-- -	62*	48*
1943	51.3	52.5	55.2	55.0	55.4	55.2	58.8	59.4	60.8	59.7	57.4	55.0	56.3	64	49
1944	52.3	52.5	52.5	53.4	56.3	57.4	60.1	60.6	60.1	60.3	58.5	55.2	56.6	63	51
1945	54.0	54.0	52.0	53.1	56.1	58.3	61.7	60.4	61.5	61.0	57.6	55.0	57.1	64	50
1946	51.6	51.3	52.2	-- -	-- -	58.6	60.6	60.8	59.7	59.0	53.6	-- -	-- -	64	49*
1947	50.2	52.7	54.5	56.3	57.0	59.7	59.9	62.2	62.4	61.5	54.1	-- -	-- -	65	49*
1948	-- -	-- -	-- -	-- -	54.7	56.7	58.6	60.4	59.8	57.9	53.2	49.6	-- -	66	46*
1949	-- -	47.7	52.4	54.1	55.4	58.1	57.7	60.4	60.3	56.9	54.9	51.5	-- -	64	46*
1950	48.3	50.0	52.7	54.1	54.0	56.6	59.1	60.5	60.8	58.3	57.5	54.9	55.6	64	44
1951	50.4	50.6	51.0	52.4	55.1	55.8	57.5	58.0	59.7	59.1	55.2	52.7	54.8	62	47
1952	50.4	52.9	51.6	53.8	54.6	55.7	58.0	57.5	57.5	56.6	53.9	52.9	54.6	62	48
1953	53.0	50.6	50.6	52.9	55.4	56.8	57.9	60.6	62.5	58.6	55.5	51.7	55.5	64	48
1954	50.8	51.0	52.9	55.4	55.7	56.1	58.0	58.6	60.8	59.0	55.6	52.7	55.6	62	49
1955	49.8	51.0	52.4	53.1	55.2	57.5	57.4	57.4	58.0	57.6	53.3	51.3	54.5	60	47
Mean	50.9	51.7	53.2	54.4	55.7	57.4	58.9	59.7	60.3	59.0	55.7	52.6	55.8		
Max.	58	57	59	61	62	64	64	66	65	64	62	61		66	
Mean Max.	52.8	53.6	55.1	56.7	58.4	60.2	60.9	61.6	62.0	61.0	57.9	55.1			
Mean Min.	49.1	49.7	51.3	52.2	53.2	54.6	56.4	57.7	58.7	56.9	53.7	50.3			
Min.	45	44	48	49	51	51	52	52	55	52	50	46			44
							YERBA BUENA ISLAND, SAN FRANCISCO BAY, CALIF.								
1937	47.7	48.7	54.8	56.1	-- -	-- -	-- -	64.6	63.0	-- -	-- -	-- -	-- -	67*	45*

	ALAMEDA, CALIF.														
1940	52.9	55.4	60.4	63.0	65.3	68.9	69.8	68.5	69.8	64.6	56.8	52.7	62.3	73	50
1941	51.8	54.3	58.3	58.8	63.7	66.0	67.6	67.1	66.4	61.7	58.1	53.2	60.6	72	49
1942	50.9	52.9	57.2	59.5	63.3	66.7	69.1	67.6	65.3	63.1	56.5	52.7	60.4	72	49
1943	50.4	54.3	59.0	61.5	64.2	65.1	67.3	68.4	67.8	64.2	58.5	52.3	61.1	72	46
1944	50.4	51.8	56.1	58.1	63.9	64.0	66.7	67.3	68.0	64.8	57.9	53.2	60.2	72	49
1945	50.7	54.3	54.1	59.2	61.7	67.5	69.4	67.8	67.1	64.2	57.2	52.3	60.5	72	49
1946	51.1	51.4	55.6	60.8	62.8	66.6	69.8	68.4	66.9	63.0	54.7	51.8	60.2	74	47
1947	48.0	53.6	58.2	63.9	66.2	69.0	70.5	70.0	69.2	64.3	55.8	51.1	61.6	75	46
1948	51.8	51.3	55.4	58.2	62.1	65.6	68.7	69.1	67.7	63.5	56.7	50.2	60.0	73	47
1949	44.6	48.5	54.8	62.5	65.4	68.2	69.3	68.6	69.4	62.8	58.4	52.3	60.4	73	42
1950	47.7	51.5	56.1	62.3	62.8	65.4	68.2	68.6	67.7	64.1	60.7	55.1	60.8	74	45
1951	51.2	52.6	56.3	57.7	63.6	65.1	66.3	66.8	66.1	64.0	57.1	51.3	59.8	71	48
1952	48.9	53.1	54.4	61.8	65.2	65.0	67.8	68.2	68.3	63.3	57.2	51.6	60.4	73	47
1953	53.3	53.7	54.9	60.0	64.0	67.1	70.3	69.0	69.3	63.7	56.9	52.8	61.2	74	51
1954	51.0	54.0	55.6	63.0	65.7	67.7	71.2	67.2	68.6	64.4	57.6	52.1	61.5	76	48
1955	48.9	52.8	57.6	58.6	64.6	66.8	68.9	68.5	67.8	63.4	56.4	52.8	60.6	75	48
Mean	50.2	52.8	56.5	60.6	64.0	66.5	68.8	68.2	67.8	63.7	57.3	52.3	60.7		
Max.	56	59	64	71	71	76	76	75	73	70	64	58		76	
Mean Max.	52.7	56.3	60.6	64.8	68.8	71.2	72.8	71.5	71.5	67.8	61.2	55.3			
Mean Min.	48.1	50.2	52.8	56.6	59.9	62.7	65.5	64.9	64.8	60.1	53.8	49.8			
Min.	42	44	49	54	57	60	62	63	62	58	50	47			42
	SAN FRANCISCO (Hunters Point), CALIF.														
1945	-- -	-- -	52.0	55.8	57.9	61.0	63.9	62.8	63.5	62.6	57.2	52.5	-- -	68	49*
1946	51.3	50.7	53.2	57.4	59.0	62.1	63.7	63.9	62.8	62.6	-- -	-- -	-- -	67	47*
--															
1951	-- -	-- -	-- -	-- -	58.1	59.9	62.5	63.1	63.6	62.6	57.4	52.5	-- -	66	50*
1952	49.0	52.6	52.4	56.2	58.5	60.6	63.1	63.5	62.6	60.7	57.5	52.7	57.4	66	47
1953	52.9	52.5	-- -	-- -	57.6	59.9	62.0	62.8	65.0	62.8	57.4	53.7	-- -	67	50*
1954	51.3	52.2	54.5	58.0	59.2	60.3	63.2	62.8	64.1	62.3	57.7	52.1	58.1	65	48

* Data are incomplete for the part of year in which this extreme occurs. This value is from the months shown.

Table 1.—Surface Water Temperatures—*Continued*

Means and Extremes in °F.

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Means	Max.	Min.
SAN FRANCISCO (Hunters Point), CALIF. —Continued															
1955	49.1	50.6	53.3	54.8	58.2	60.9	61.5	62.2	62.6	61.4	56.1	53.1	57.0	64	48
Mean	50.7	51.7	53.1	56.4	58.4	60.7	62.8	63.0	63.5	62.1	57.2	52.8	57.7		
Max.	57	56	57	61	62	66	68	67	67	65	61	56		68	
Mean Max.	53.2	54.5	56.0	59.3	60.9	63.7	65.7	65.1	65.1	64.1	59.8	55.4			
Mean Min.	48.7	50.0	50.7	53.7	55.4	57.8	60.6	61.4	62.0	59.9	54.8	50.5			
Min.	47	49	49	53	54	56	60	60	61	58	53	48			47
DUMBARTON BRIDGE, SAN FRANCISCO BAY, CALIF.															
1937	44.2	48.5	55.0	58.1	62.6	67.1	71.1	70.2	68.4	65.8	---	---	---	73	39*
—															
1952	47.8	52.5	53.8	60.4	64.8	66.0	70.5	70.0	68.5	65.3	57.7	51.4	60.7	73	46
SAUSALITO, CALIF.															
1893	50.8	51.0	52.6	55.6	57.4	59.2	59.0	59.1	60.3	57.0	55.2	53.7	55.9	62	48
1894	50.2	50.2	51.4	54.6	57.0	59.0	59.2	59.8	61.4	60.2	57.3	53.3	56.1	64	49
1895	51.0	52.8	54.6	55.9	59.0	59.7	62.3	61.4	60.8	58.7	55.2	52.4	57.0	65	48
1896	52.2	53.8	55.1	53.8	56.0	58.3	60.8	61.4	59.8	58.4	53.4	52.3	56.3	68	45
--															
1937	48.2	48.2	48.4	51.8	57.2	57.4	61.2	60.6	61.5	---	---	---	---	63*	45*
—															
1952	48.0	51.1	50.9	55.8	58.8	58.8	60.8	61.0	62.6	59.7	55.0	52.7	56.3	66	45
Mean	50.1	51.2	52.2	54.6	57.6	58.7	60.6	60.6	61.1	58.8	55.2	52.9	56.1		
Max.	55	56	59	60	64	66	68	67	65	67	63	57		68	
Mean Max.	52.4	53.6	56.2	58.1	61.0	61.8	63.1	63.3	63.2	62.1	58.5	55.2			
Mean Min.	48.1	49.5	50.0	52.2	53.0	56.0	58.0	58.2	58.2	56.3	51.5	50.1			
Min.	45	47	47	49	50	54	56	57	56	54	45	48			45

							POINT SAN QUENTIN, SAN FRANCISCO BAY, CALIF.								
1937	44.1	48.2	55.8	58.8	62.1	64.8	66.4	66.6	66.4	64.2	61.3	-- -	-- -	71	39*
							MARE ISLAND STRAIT, CALIF.								
1937	44.1	47.7	54.3	57.6	61.9	66.6	68.4	68.2	67.1	-- -	-- -	-- -	-- -	71	41*
							BENICIA, CARQUINEZ STRAIT, CALIF.								
1937	43.7	47.3	54.1	57.9	61.9	67.3	69.6	68.7	68.5	65.3	-- -	-- -	-- -	77	41*
— 1952	45.5	49.6	51.3	58.1	62.1	64.6	66.9	66.9	66.6	63.3	56.5	49.3	58.4	69	43
							PITTSBURG, NEW YORK SLOUGH, CALIF.								
1952	44.6	48.9	51.3	59.2	63.5	65.8	68.9	69.6	68.7	65.5	56.8	48.4	59.3	72	42
							THREE MILE SLOUGH, SAN JOAQUIN RIVER, CALIF.								
1938	-- -	-- -	-- -	-- -	-- -	-- -	-- -	-- -	-- -	-- -	52.0	49.3	-- -	--	46*
1939	46.6	46.6	52.2	61.0	64.4	68.0	69.6	68.0	68.5	65.3	58.5	51.4	60.0	72	45
1940	48.6	51.4	55.8	60.1	66.2	70.2	-- -	-- -	-- -	-- -	-- -	-- -	-- -	72*	45*
							PRISONERS POINT, SAN JOAQUIN RIVER, CALIF.								
1939	-- -	-- -	-- -	-- -	-- -	-- -	-- -	72.3	71.1	66.4	59.5	52.3	-- -	76*	50*
1940	50.9	53.4	58.6	61.2	68.7	73.8	-- -	-- -	-- -	-- -	-- -	-- -	-- -	77*	46*
							COLLINSVILLE, SACRAMENTO RIVER, CALIF.								
1937	40.6	46.0	53.8	56.8	61.9	67.6	70.0	70.0	67.6	64.9	57.9	53.1	59.2	72	37

* Data are incomplete for the part of year in which this extreme occurs. This value is from the months shown.

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Table 1.—Surface Water Temperatures—*Continued*

Means and Extremes in °F.

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Means	Max.	Min.
RIO VISTA, SACRAMENTO RIVER, CALIF.															
1938	-- -	-- -	52.5	57.6	61.0	66.0	71.1	70.9	70.0	62.6	51.4	48.2	-- -	77	46*
1939	46.0	46.0	53.4	60.8	64.9	68.2	68.7	67.5	69.4	65.5	57.4	50.0	59.8	76	44
1940	48.4	51.4	55.4	59.4	64.8	70.5	-- -	-- -	-- -	-- -	-- -	-- -	-- -	73*	43*
Mean	47.2	48.7	53.8	59.3	63.6	68.2	69.9	69.2	69.7	64.0	54.4	49.1	59.8		
Max.	52	54	61	65	70	73	76	77	76	69	62	52		77	
Mean Max.	49.0	52.5	59.3	64.0	68.3	71.0	75.5	74.0	74.5	68.5	60.5	51.5			
Mean Min.	44.0	46.5	49.7	54.3	59.0	65.0	65.0	65.5	66.5	60.5	50.0	46.5			
Min.	43	44	48	52	55	63	64	65	65	60	48	46			43
NEW HOPE BRIDGE, MOKELUMNE RIVER, CALIF.															
1938	-- -	-- -	-- -	54.9	56.8	61.9	68.2	70.5	68.4	61.0	52.5	50.7	-- -	75	48*
1939	47.1	46.8	52.7	62.6	65.5	69.4	71.1	69.3	68.0	63.0	54.0	48.7	59.8	75	45
1940	48.6	51.1	53.6	54.7	59.0	65.7	-- -	-- -	-- -	-- -	-- -	-- -	-- -	72*	43*
Mean	47.8	49.0	53.2	57.4	60.4	65.7	69.6	69.9	68.2	62.0	53.2	49.7	58.8		
Max.	54	55	59	64	73	75	75	73	73	66	59	54		75	
Mean Max.	52.0	51.5	59.0	60.7	66.0	71.7	74.0	72.5	71.5	65.0	59.0	53.0			
Mean Min.	44.0	46.5	48.0	53.7	57.0	60.7	65.5	67.0	65.0	58.0	50.0	47.0			
Min.	43	45	46	50	54	59	61	66	64	57	50	46			43
BLUNTS REEF LIGHTSHIP															
1923	50.7	48.8	47.0	49.4	48.5	50.9	53.6	53.6	51.2	52.3	54.1	51.0	50.9	62	46
1924	49.4	51.1	48.4	47.9	48.6	48.9	48.7	50.5	49.5	51.9	53.4	49.4	49.8	57	45

1925	48.6	50.7	48.4	49.3	51.6	50.4	50.1	51.4	52.9	51.8	53.5	53.6	51.0	58	46
1926	53.6	53.7	52.4	53.8	53.5	49.7	48.9	50.0	52.3	52.2	55.1	50.9	52.2	59	47
1927	51.9	51.6	49.9	48.7	48.7	48.9	49.2	52.3	55.5	51.3	54.9	51.2	51.2	60	46
1928	52.0	51.4	52.1	51.8	50.0	49.1	50.0	50.4	51.2	51.3	52.6	52.7	51.2	56	47
1929	50.9	49.5	48.3	48.4	48.5	51.0	51.6	52.7	54.0	51.9	50.6	53.3	50.9	60	46
1930	52.1	52.1	51.9	53.5	49.6	49.1	49.5	51.9	54.0	51.8	52.8	53.3	51.8	57	48
1931	53.8	53.7	51.3	50.0	51.5	54.6	52.5	53.0	55.2	53.9	52.1	53.3	52.9	59	48
1932	50.8	50.5	50.9	51.4	51.4	50.4	51.2	53.5	53.2	54.1	53.4	52.2	51.9	59	48
1933	50.8	50.0	50.3	48.2	49.9	49.7	49.7	51.3	52.7	51.3	50.6	54.0	50.7	58	46
1934	51.3	51.0	51.3	52.1	54.4	51.3	50.7	52.2	52.5	52.8	54.9	52.6	52.3	59	48
1935	53.6	52.8	52.1	51.5	51.3	49.9	49.9	50.5	51.4	51.9	50.2	51.4	51.4	56	47
1936	51.1	51.4	49.7	49.5	52.0	55.3	49.7	49.5	50.9	52.1	51.5	52.4	51.3	59	44
1937	50.6	51.0	51.9	50.9	50.9	53.7	51.3	51.1	52.1	54.6	55.3	55.2	52.4	59	48
1938	54.0	53.8	53.2	51.1	48.6	48.0	50.1	51.4	52.5	55.3	51.4	51.9	51.8	60	46
1939	50.8	48.6	48.9	48.9	51.1	49.0	50.1	52.7	53.0	53.5	53.0	55.2	51.2	59	46
1940	55.3	54.9	53.2	51.7	51.5	50.5	51.9	52.4	56.1	55.4	54.3	54.8	53.5	61	47
1941	55.6	56.2	55.6	52.5	54.4	53.0	51.6	53.1	54.6	53.0	55.8	--	-- -	60	49
--															
1955	-- -	47.7	47.9	47.0	48.0	47.8	48.5	47.9	48.5	-- -	50.3	51.9	-- -	55	45*
Mean	51.9	51.5	50.7	50.4	50.7	50.6	50.4	51.6	52.7	52.8	53.0	52.6	51.6		
Max.	57	59	58	58	59	59	58	62	61	61	59	59		62	
Mean Max.	53.7	53.2	52.9	52.8	53.7	54.0	53.6	55.0	56.2	56.5	56.0	55.6			
Mean Min.	50.1	50.0	48.2	48.0	48.4	48.0	48.1	49.2	50.0	50.2	50.1	49.8			
Min.	47	46	44	46	46	45	47	47	47	48	47	47			44
							CRESCENT CITY, CALIF.								
1934	51.4	52.2	54.5	54.1	56.3	53.8	55.8	55.2	53.1	51.4	51.8	49.3	53.2	63	45
1935	47.7	48.9	46.4	49.5	50.0	50.7	51.8	52.9	55.2	51.3	47.5	49.3	50.1	58	42
1936	49.6	47.8	47.7	49.5	51.8	55.9	55.0	55.4	52.5	51.4	48.9	48.2	51.1	60	43
1937	44.6	46.0	49.3	49.1	49.8	51.6	55.0	54.7	54.1	52.0	52.5	51.3	50.8	57	41
1938	49.6	48.0	49.8	49.6	49.8	51.6	55.4	55.8	54.3	53.8	49.8	49.3	51.4	61	44
1939	48.2	47.3	47.1	49.1	52.3	51.4	55.2	58.1	56.8	53.4	50.9	51.4	51.8	61	45

* Data are incomplete for the part of year in which this extreme occurs. This value is from the months shown.

Table 1.—Surface Water Temperatures—*Continued*

Means and Extremes in °F.

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Means	Max.	Min.
							CRESCENT CITY, CALIF.-Continued								
1940	52.0	52.7	52.5	52.5	54.3	54.0	57.0	56.8	58.8	55.2	53.8	51.8	54.3	63	47
1941	51.1	53.1	54.3	53.2	55.9	57.4	58.1	59.2	55.6	52.9	54.5	51.8	54.8	63	47
1942	51.1	50.5	50.2	52.2	53.6	54.7	59.0	58.6	54.1	53.8	51.4	50.4	53.3	64	47
1943	48.4	49.5	51.8	53.2	50.7	54.0	56.3	58.8	57.4	56.8	54.3	49.6	53.4	63	41
1944	50.0	49.5	48.9	51.6	52.3	55.0	55.8	58.1	55.8	55.4	54.9	53.1	53.4	60	46
1945	51.6	51.1	48.7	48.0	54.7	53.6	58.1	58.8	54.1	-- -	52.7	51.1	-- -	65	46
1946	50.5	48.7	49.8	52.0	52.9	57.6	57.6	58.6	56.8	51.3	48.7	50.4	52.9	65	46
1947	48.2	49.6	52.0	52.2	54.0	55.9	56.8	-- -	56.9	-- -	-- -	-- -	-- -	60*	45*
—															
1950	-- -	-- -	-- -	-- -	48.8	54.0	55.3	57.1	58.3	55.8	-- -	52.2	-- -	62	47*
1951	50.4	51.3	50.6	52.4	52.9	49.5	53.5	58.8	57.2	56.4	52.8	49.7	53.0	60	47
1952	47.6	47.8	50.3	50.7	52.6	54.2	54.3	55.3	53.4	-- -	53.1	50.7	-- -	56	46
1953	51.5	50.9	48.3	49.8	53.6	54.5	56.7	58.0	58.8	54.8	51.4	52.6	53.4	61	47
1954	50.1	51.7	51.8	53.0	52.6	55.7	58.1	57.6	59.6	54.7	51.3	49.7	53.8	60	47
1955	50.0	50.8	49.6	51.2	52.3	53.0	53.8	55.8	55.5	53.1	49.6	47.3	51.8	57	46
Mean	49.7	49.9	50.2	51.2	52.6	53.9	55.9	57.0	55.9	53.7	51.7	50.5	52.7		
Max.	54	55	57	59	61	63	65	63	62	61	57	57		65	
Mean Max.	52.0	52.2	52.8	53.7	55.6	57.9	59.1	59.9	58.7	56.2	54.0	52.8			
Mean Min.	46.7	46.9	47.5	48.9	49.5	50.6	52.2	54.0	52.8	51.2	48.8	47.6			
Min.	41	44	43	45	46	48	47	48	49	46	42	45			41
							BANDON, COQUILLE RIVER, ORE.								
1933	-- -	-- -	-- -	-- -	-- -	-- -	-- -	52.7	53.4	51.1	50.2	49.1	-- -	59*	45*
1934	49.5	50.5	53.6	-- -	-- -	-- -	-- -	-- -	-- -	-- -	-- -	-- -	-- -	--	46*

	COOS BAY ENTRANCE, ORE.														
1933	-- -	-- -	-- -	51.1	51.6	53.0	53.5	54.1	50.2	50.7	-- -	49.8	-- -	57	46*
1934	50.9	51.4	53.8	-- -	-- -	-- -	-- -	-- -	-- -	-- -	-- -	-- -	-- -	--	49*
	GARDINER, UMPQUA RIVER, ORE.														
1933	-- -	-- -	-- -	-- -	-- -	60.4	63.7	62.1	59.4	56.3	49.8	48.2	-- -	68	46*
1934	48.0	48.9	54.7	-- -	-- -	-- -	-- -	-- -	-- -	-- -	-- -	-- -	-- -	--	46*
	FLORENCE, SIUSLAW RIVER, ORE.														
1933	-- -	-- -	-- -	-- -	-- -	-- -	-- -	-- -	56.1	53.8	49.8	48.7	-- -	60*	45*
1934	48.7	50.2	53.6	-- -	-- -	-- -	-- -	-- -	-- -	-- -	-- -	-- -	-- -	--	47*
	WALDPORT, ALSEA BAY, ORE.														
1933	-- -	-- -	-- -	-- -	53.1	56.7	57.2	55.8	53.5	51.5	51.6	48.7	-- -	64	46*
1934	48.7	49.5	52.0	-- -	-- -	-- -	-- -	-- -	-- -	-- -	-- -	-- -	-- -	--	46*
	NEWPORT, YAQUINA BAY, ORE.														
1933	-- -	-- -	-- -	49.3	52.0	55.0	50.2	50.0	52.7	51.6	52.2	50.9	-- -	60	45*
1934	50.9	51.3	53.4	54.3	-- -	-- -	-- -	-- -	-- -	-- -	-- -	-- -	-- -	--	49*
	TAFT, SILETZ BAY, ORE.														
1933	-- -	-- -	-- -	-- -	-- -	55.9	52.2	53.7	53.6	51.8	49.8	48.4	-- -	64	46*
1934	48.6	50.5	52.0	54.1	-- -	-- -	-- -	-- -	-- -	-- -	-- -	-- -	-- -	--	46*
	GARIBALDI, TILLAMOOK BAY, ORE.														
1933	-- -	-- -	-- -	-- -	52.3	56.8	55.4	55.9	55.4	52.9	50.4	-- -	-- -	63	45*
1934	49.1	50.4	51.8	54.0	-- -	-- -	-- -	-- -	-- -	-- -	-- -	-- -	-- -	--	47*
	BRIGHTON, NEHALEM RIVER, ORE.														
1933	-- -	-- -	-- -	-- -	50.4	55.9	55.9	56.5	54.1	52.0	50.4	49.3	-- -	63	41*
1934	48.7	50.4	52.3	56.3	-- -	-- -	-- -	-- -	-- -	-- -	-- -	-- -	-- -	--	45*

* Data are incomplete for the part of year in which this extreme occurs. This value is from the months shown.

Table 1.—Surface Water Temperatures—*Continued*

Means and Extremes in °F.

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Means	Max.	Min.
							ASTORIA (Tongue Point), ORE.								
1925	41.9	43.3	46.0	51.1	56.5	59.9	66.9	66.9	63.1	56.1	48.0	44.1	53.6	70	39
1926	41.2	44.4	49.6	56.3	58.8	64.7	68.7	66.7	62.6	55.7	49.1	41.8	55.0	71	37
1927	39.9	41.5	45.1	50.4	54.0	59.4	64.7	67.5	62.1	55.3	48.7	40.1	52.4	70	33
1928	37.4	41.0	46.0	49.5	57.2	59.7	65.5	66.6	62.2	55.9	48.4	41.0	52.5	71	33
1929	38.1	36.0	44.4	48.6	56.3	59.2	66.6	68.2	64.2	56.7	47.5	42.6	52.4	75	32
1930	36.1	40.3	45.3	53.8	55.8	59.9	65.1	68.7	63.7	55.6	48.2	42.3	52.9	71	32
1931	41.2	43.3	46.6	51.3	59.2	63.1	66.7	67.6	64.4	56.1	47.3	39.7	53.9	71	35
1932	39.7	39.2	44.8	50.2	55.4	59.7	64.6	66.9	63.1	57.2	48.7	39.2	52.4	71	34
1933	39.4	37.2	44.1	50.2	52.9	58.3	65.0	66.7	61.3	55.9	47.5	45.0	52.0	69	34
1934	43.2	44.6	49.1	54.7	57.4	62.1	65.5	67.3	63.5	56.3	50.2	43.5	54.8	70	41
1935	39.7	42.3	44.1	50.2	56.5	60.8	64.2	66.0	64.8	56.7	44.4	42.6	52.7	70	34
1936	42.8	37.6	44.2	51.6	57.0	61.9	68.2	69.4	63.7	58.5	47.7	43.5	53.8	72	34
1937	36.1	38.7	46.6	49.5	56.3	60.8	66.9	67.6	64.6	58.5	50.7	44.2	53.4	70	32
1938	42.1	41.9	46.0	51.4	56.5	60.6	66.7	66.6	65.5	58.6	47.7	42.1	53.8	72	39
1939	42.6	41.2	46.0	52.7	58.3	60.1	66.2	68.2	63.7	57.6	50.7	46.4	54.5	75	37
1940	41.9	43.7	48.4	53.8	59.7	64.6	67.6	68.4	66.0	59.9	47.7	43.2	55.4	71	40
1941	42.3	45.1	49.5	54.7	59.2	63.0	69.8	67.8	63.3	57.7	50.9	44.8	55.7	75	38
1942	37.8	42.8	44.6	51.1	54.9	58.5	65.8	66.9	63.3	58.6	47.5	43.7	53.0	70	35
1943	38.1	40.6	43.5	50.0	53.4	57.7	63.7	65.8	64.4	58.3	48.4	42.8	52.2	68	33
1944	39.7	41.9	45.3	50.9	57.2	61.2	66.0	67.3	64.8	59.5	50.4	42.6	53.9	70	37
1945	42.3	43.0	44.8	49.8	56.5	60.3	66.6	67.1	65.1	57.6	48.6	44.8	53.9	71	39
1946	43.7	43.5	— -	— -	— -	— -	— -	— -	63.7	55.8	46.0	43.9	— -	66*	38
1947	37.6	43.2	47.3	52.5	58.5	61.2	66.2	67.1	63.7	57.4	48.9	44.8	54.0	71	34
1948	41.2	39.2	44.1	48.4	53.1	60.4	65.1	65.5	63.9	55.8	46.9	41.0	52.0	71	37
1949	33.4	37.4	45.5	52.2	55.6	60.0	64.8	66.6	66.0	55.7	51.3	44.5	52.8	69	31

1950	35.8	39.1	44.8	49.6	54.3	59.0	65.5	68.2	65.4	56.2	48.6	46.8	52.8	71	32
1951	42.6	42.5	43.0	52.5	56.1	61.1	67.0	67.2	64.0	57.8	48.1	42.9	53.7	69	37
1952	38.1	42.7	44.3	52.1	56.9	60.7	66.3	67.3	64.7	61.1	50.3	43.9	54.0	70	34
1953	46.3	46.2	47.0	50.9	57.2	59.8	66.5	68.0	66.0	58.6	51.9	47.3	55.5	71	43
1954	41.0	43.4	46.1	50.6	56.8	58.7	63.9	65.1	64.6	57.7	52.4	44.7	53.8	67	37
1955	41.9	43.0	43.2	48.5	55.0	59.9	62.0	66.4	63.6	56.3	45.5	42.5	52.3	69	37
Mean	40.2	41.6	45.6	51.3	56.4	60.5	65.9	67.2	64.0	57.2	48.7	43.3	53.5		
Max.	48	48	54	60	67	70	75	75	71	66	57	51		75	
Mean Max.	43.2	44.6	48.9	54.9	60.3	64.5	69.2	70.0	67.6	61.3	53.1	46.6			
Mean Min.	36.7	38.5	42.8	47.6	53.0	57.4	62.7	64.8	60.4	52.8	44.7	39.9			
Min.	31	32	38	43	50	55	59	58	56	46	37	33			31
WAUNA, COLUMBIA RIVER, ORE.															
1940	-- -	-- -	-- -	-- -	-- -	-- -	-- -	-- -	-- -	-- -	46.0	41.7	-- -	--	38*
1941	41.0	43.2	48.0	53.8	58.1	61.9	70.3	69.1	63.9	58.1	51.3	44.8	55.3	74	39
1942	36.7	41.9	43.7	50.5	56.1	60.1	64.9	-- -	-- -	-- -	-- -	-- -	-- -	66*	35*
HARRINGTON POINT, COLUMBIA RIVER, WASH.															
1940	-- -	-- -	-- -	-- -	-- -	-- -	-- -	-- -	63.5	60.6	47.8	43.2	-- -	68*	40*
1941	41.5	43.7	48.2	54.7	59.5	63.1	71.2	70.0	63.7	58.4	51.8	44.8	55.9	73	40
1942	37.0	42.6	44.6	51.8	56.1	60.8	65.7	-- -	-- -	-- -	-- -	-- -	-- -	69*	36*
SKAMOKAWA, COLUMBIA RIVER, WASH.															
1940	-- -	-- -	-- -	-- -	-- -	-- -	-- -	-- -	-- -	-- -	45.3	41.9	-- -	--	39*
1941	40.8	42.8	47.7	54.0	58.6	62.4	68.4	67.6	62.8	57.0	50.2	44.1	54.7	72	38
1942	37.0	41.9	44.8	51.6	55.6	59.4	66.9	-- -	-- -	-- -	-- -	-- -	-- -	69*	33*
CATHLAMET, COLUMBIA RIVER, WASH.															
1940	-- -	-- -	-- -	-- -	-- -	-- -	-- -	-- -	66.0	61.0	47.3	42.4	-- -	69*	37*
1941	40.6	43.2	47.5	54.1	59.0	63.3	71.4	70.3	64.0	57.9	50.2	44.6	55.5	75	39
1942	36.3	41.5	44.8	51.8	55.4	59.4	66.9	-- -	-- -	-- -	-- -	-- -	-- -	69*	33*

* Data are incomplete for the part of year in which this extreme occurs. This value is from the months shown.

Table 1.—Surface Water Temperatures—*Continued*

Means and Extremes in °F.

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Means	Max.	Min.
							TOKELAND, WILLAPA BAY, WASH.								
1935	45.0	46.8	46.2	52.0	56.5	59.9	62.2	63.3	59.9	55.0	45.9	45.3	53.2	69	37
1936	45.9	40.1	47.8	47.3	53.6	62.4	66.0	66.4	57.9	55.0	48.2	47.1	53.1	70	32
1937	39.2	42.8	49.1	50.5	55.6	60.4	63.3	63.3	61.7	56.7	52.5	49.1	53.7	69	32
1938	46.2	45.9	48.6	53.2	55.9	59.2	61.5	62.2	61.7	56.5	49.6	45.9	53.9	71	41
1939	46.6	44.2	47.7	54.0	57.6	60.4	63.7	62.6	60.3	56.1	53.1	-- -	-- -	72	40*
Mean	44.6	44.0	47.9	51.4	55.8	60.5	63.3	63.6	60.3	55.9	49.9	46.8	53.7		
Max.	50	51	54	64	65	66	72	70	68	63	60	52		72	
Mean Max.	47.8	48.4	51.5	57.8	62.2	65.5	69.9	68.4	65.3	59.9	53.3	50.0			
Mean Min.	38.8	38.9	45.0	47.3	51.3	55.8	59.2	59.4	56.7	51.3	46.5	42.1			
Min.	32	32	44	45	47	53	57	56	55	46	41	41			32
							RAYMOND, WILLAPA BAY WASH.								
1935	— -	— -	44.6	50.5	58.6	64.0	66.4	66.2	63.5	55.6	44.4	43.9	— -	75	41*
1936	45.3	39.7	45.7	52.9	59.9	62.8	68.2	69.6	63.3	57.9	47.1	45.1	54.8	73	36
1937	37.2	41.9	47.7	48.4	56.5	62.4	68.0	66.9	64.4	57.4	50.5	46.0	53.9	72	35
1938	44.2	43.3	46.9	51.6	58.8	64.0	66.9	66.7	66.0	59.2	47.1	43.9	54.9	72	39
1939	46.2	44.1	46.2	54.5	61.3	63.0	68.7	69.3	64.6	58.8	51.1	47.8	56.3	79	39
1940	46.2	48.4	51.4	55.8	61.2	67.6	69.3	70.3	67.5	60.4	49.3	47.8	57.9	77	40
1941	46.9	50.0	54.1	58.6	62.2	66.0	71.8	69.6	63.3	58.8	52.5	47.8	58.5	79	41
1942	43.7	47.3	49.1	55.4	60.3	64.0	— -	— -	-- -	-- -	-- -	-- -	-- -	--	37*
Mean	44.2	45.0	48.2	53.5	59.8	64.2	68.5	68.4	64.7	58.3	48.9	46.0	55.8		
Max.	52	52	59	64	68	72	79	77	73	65	59	54		79	
Mean Max.	47.9	48.5	52.2	58.2	64.8	68.7	74.3	73.0	68.9	62.6	54.1	50.5			
Mean Min.	40.6	41.1	44.5	48.5	54.7	60.2	63.1	64.5	60.2	51.7	44.0	41.1			
Min.	35	36	42	42	51	57	59	61	58	46	41	39			35

	ABERDEEN, GRAYS HARBOR, WASH.														
1934	-- -	-- -	-- -	-- -	-- -	64.6	64.8	64.8	61.9	55.9	49.8	45.1	-- -	68	39*
1935	42.8	45.1	44.6	50.7	58.1	62.2	63.1	-- -	-- -	-- -	-- -	-- -	-- -	68*	33*
	NEAH BAY, WASH.														
1936	47.1	43.9	44.6	46.8	51.6	55.6	54.0	51.3	48.6	48.2	46.6	46.8	48.8	62	41
1937	43.3	42.8	45.5	46.9	49.3	51.8	51.1	50.2	49.1	51.3	52.5	48.7	48.5	58	41
1938	47.1	46.4	47.7	49.1	49.1	48.7	49.5	49.1	50.0	52.9	49.1	46.8	48.8	56	45
1939	46.6	45.1	45.9	46.4	50.5	50.5	50.5	50.7	50.0	49.3	50.4	50.5	48.9	56	44
1940	48.2	48.4	49.1	50.5	52.0	50.9	51.6	50.9	53.2	53.2	51.3	48.7	50.7	58	44
1941	47.8	48.7	50.0	51.4	52.2	52.9	52.9	51.6	54.9	49.6	51.6	49.8	51.1	59	46
1942	46.9	47.1	46.6	48.9	52.0	52.5	55.4	52.2	50.0	51.6	49.1	47.1	50.0	63	45
1943	44.1	44.8	45.5	50.7	50.7	52.7	53.4	53.4	52.2	53.1	49.5	46.9	49.8	59	40
1944	45.7	45.1	45.5	49.1	50.5	53.2	52.5	52.5	52.9	51.8	50.7	46.2	49.6	62	43
1945	46.2	46.0	46.4	47.7	52.7	52.9	54.0	53.0	50.9	49.3	46.0	45.7	49.2	61	44
1946	45.8	45.1	46.9	48.9	51.8	55.4	56.7	54.5	52.6	49.4	45.9	44.9	49.8	64	42
1947	43.0	45.4	47.8	49.1	51.6	57.0	57.3	55.5	53.0	52.4	48.9	46.6	50.6	62	40
1948	45.5	43.6	45.9	47.8	52.4	55.9	55.8	54.0	55.5	51.2	47.2	45.2	50.0	64	42
1949	41.7	41.5	45.6	48.6	53.1	53.9	52.2	55.8	53.8	49.3	48.8	46.6	49.2	62	40
1950	40.2	42.2	44.8	47.7	49.5	52.7	52.9	54.1	53.1	52.2	48.9	47.9	48.8	61	36
1951	45.4	44.2	-- -	-- -	-- -	-- -	-- -	-- -	-- -	53.0	48.1	45.5	-- -	58*	40*
1952	43.3	45.5	45.8	48.1	51.2	-- -	53.2	53.5	51.7	50.3	48.1	46.9	-- -	60*	41
1953	47.1	46.6	46.5	48.4	52.5	52.7	54.7	55.2	54.5	53.2	51.3	48.2	50.9	60	45
1954	44.1	-- -	44.2	47.5	49.4	53.1	52.5	51.7	56.5	50.6	51.8	48.4	-- -	59	38*
1955	46.1	45.1	43.7	47.0	48.8	49.1	51.2	51.2	49.7	50.3	46.0	43.5	47.6	56	38
Mean	45.3	45.1	46.2	48.5	51.1	52.9	53.2	52.7	52.2	51.1	49.1	47.0	49.5		
Max.	50	51	52	55	60	64	64	62	62	58	55	52		64	
Mean Max.	47.2	46.9	48.3	51.4	55.5	57.7	58.2	56.8	56.8	54.7	51.5	49.3			
Mean Min.	42.8	43.0	44.3	46.4	48.3	49.3	49.8	49.3	48.4	48.0	46.6	44.3			
Min.	36	38	38	44	46	46	47	47	46	45	42	38			36

* Data are incomplete for the part of year in which this extreme occurs. This value is from the months shown.

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Table 1.—Surface Water Temperatures—*Continued*

Means and Extremes in °F.

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Means	Max.	Min.
							PORT ANGELES, WASH.								
1934	-- -	-- -	-- -	-- -	-- -	-- -	53.2	54.5	52.0	50.2	49.6	47.3	-- -	59*	46*
1935	45.1	45.9	46.6	49.1	50.5	51.8	52.7	52.7	52.7	-- -	-- -	-- -	-- -	61*	39*
							PORT TOWNSEND (Fort Worden), WASH.								
1935	-- -	-- -	-- -	46.9	48.7	50.7	51.4	51.3	51.1	49.6	47.3	46.8	-- -	54	46*
1936	46.4	45.5	-- -	-- -	-- -	-- -	-- -	-- -	-- -	-- -	-- -	-- -	-- -	--	45*
							PORT TOWNSEND (town), WASH.								
1874	43.6	43.8	44.4	47.0	49.9	51.8	52.8	52.8	51.5	50.2	47.9	47.1	48.6	56	42
1875	43.6	44.0	44.0	46.1	47.4	49.0	51.2	52.0	50.8	49.8	47.5	46.2	47.6	55	41
1876	43.4	43.4	43.6	45.3	47.6	49.5	51.0	50.8	50.0	49.1	47.5	45.8	47.2	53	41
Mean	43.5	43.7	44.0	46.1	48.3	50.1	51.7	51.9	50.8	49.7	47.6	46.4	47.8		
Max.	47	45	46	50	53	54	56	55	54	52	50	50		56	
Mean Max.	45.7	44.5	45.0	49.0	49.8	51.8	54.2	53.8	52.7	51.5	49.0	47.8			
Mean Min.	41.7	42.7	42.8	44.5	46.7	48.8	50.0	50.3	49.7	48.0	45.7	44.5			
Min.	41	42	42	43	46	48	49	49	49	48	44	42			41
							EVERETT, WASH.								
1934	-- -	-- -	-- -	-- -	-- -	-- -	-- -	61.5	57.6	53.4	49.6	46.6	-- -	65*	41*
1935	44.6	44.4	44.8	49.1	54.5	57.4	61.5	59.7	-- -	-- -	-- -	-- -	-- -	70*	38*
							BREMERTON, WASH.								
1934	-- -	-- -	-- -	-- -	-- -	-- -	59.4	59.9	58.1	54.5	51.6	48.6	-- -	63*	43*
1935	45.3	45.7	46.0	48.4	53.4	57.4	59.2	60.8	59.4	54.3	49.3	48.0	52.3	64	42
1936	46.6	43.9	-- -	-- -	-- -	56.5	59.4	59.9	-- -	55.6	50.9	-- -	-- -	63*	42*

SEATTLE (Elliott Bay), WASH.

1922	45.3	43.9	44.5	46.7	50.2	52.9	53.1	54.1	54.0	-- -	50.4	49.2	-- -	57	43
1923	49.5	49.5	49.6	50.0	51.1	54.0	55.9	57.9	56.5	53.6	51.6	49.5	52.4	63	46
1924	49.5	49.6	48.4	49.6	52.7	54.0	57.7	58.1	55.9	52.9	49.5	49.5	52.3	63	46
1925	49.5	49.6	49.6	50.4	54.0	56.5	60.3	58.1	56.5	53.4	50.0	48.7	53.0	69	46
1926	48.2	48.4	49.8	52.3	55.0	59.5	59.7	59.4	57.4	55.0	51.9	48.6	53.8	65	42
1927	46.4	47.1	46.8	49.5	52.0	57.0	57.6	57.2	56.3	54.3	50.4	48.6	52.0	62	38
1928	46.4	45.9	47.8	48.7	54.1	55.4	59.4	58.5	55.4	53.4	50.5	48.6	52.0	64	43
1929	46.6	45.0	46.0	47.1	51.3	55.0	56.8	57.4	56.5	54.3	50.7	48.7	51.3	61	44
1930	44.2	45.0	45.5	47.8	50.0	52.5	54.9	55.9	55.8	53.4	51.6	49.6	50.5	60	42
1931	48.2	46.9	47.3	48.6	52.2	54.3	56.5	56.5	55.9	53.8	50.5	48.7	51.6	59	46
1932	46.4	45.1	45.5	47.5	49.8	53.4	55.4	55.2	54.7	53.4	50.7	47.8	50.4	58	44
1933	46.2	44.8	45.0	46.6	48.4	52.7	55.0	55.8	54.0	52.5	50.7	48.2	50.0	58	42
1934	47.1	47.3	47.8	50.0	52.2	54.5	55.9	56.7	55.4	53.6	51.8	49.6	51.8	58	46
1935	47.3	46.4	45.9	46.9	49.8	53.4	54.9	55.4	55.2	53.4	50.4	48.7	50.6	58	45
1936	46.9	46.2	46.4	47.7	51.6	55.0	56.5	56.8	55.8	54.3	51.6	49.5	51.5	64	45
1937	46.7	44.8	45.5	46.8	49.6	53.0	54.9	54.9	54.7	53.2	51.1	49.3	50.4	57	44
1938	47.7	46.8	46.6	48.6	51.3	54.5	55.6	55.6	55.2	53.8	52.0	49.6	51.4	59	46
1939	48.0	47.0	46.4	47.5	49.8	52.0	54.0	55.4	54.7	54.0	52.5	50.9	51.0	57	46
1940	49.3	48.6	48.5	49.6	51.6	53.9	55.6	56.0	55.6	54.7	52.5	50.5	52.2	57	47
1941	48.9	48.2	48.4	49.6	52.5	54.3	55.8	57.2	57.7	59.0	56.3	51.1	53.2	60	48
1942	48.7	47.8	47.5	48.2	50.4	52.5	54.3	55.2	55.4	54.3	52.3	50.9	51.4	59	47
1943	48.4	47.1	47.3	48.4	50.4	52.7	55.6	55.7	55.9	54.7	52.5	50.5	51.6	57	46
1944	48.7	47.5	46.9	47.7	50.2	52.2	54.0	54.9	55.4	54.5	52.2	50.5	51.2	56	46
1945	48.9	47.7	47.7	47.8	50.2	52.0	54.1	54.7	54.5	53.2	50.9	48.9	50.9	56	47
1946	47.1	46.6	46.4	46.9	49.5	52.2	54.1	56.5	55.4	54.1	52.0	49.5	50.9	58	46
1947	48.2	47.5	47.5	48.9	51.1	53.6	55.0	55.9	55.4	54.5	52.9	-- -	-- -	57	46*
1948	48.2	47.3	46.2	47.1	48.9	53.1	54.0	54.3	54.1	52.5	50.4	47.8	50.3	56	46
1949	45.5	43.7	44.1	45.7	48.7	51.6	53.2	54.4	54.5	53.0	52.0	49.4	49.6	56	43

* Data are incomplete for the part of year in which this extreme occurs. This value is from the months shown.

Table 1.—Surface Water Temperatures—*Continued*

Means and Extremes in °F.

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Means	Max.	Min.
							SEATTLE (Elliott Bay), WASH. -Continued								
1950	45.1	43.8	43.8	45.2	47.2	50.1	53.9	53.6	53.3	52.1	50.1	48.4	48.9	56	43
1951	47.1	45.6	44.8	45.7	47.4	51.6	55.0	54.7	-- -	53.7	51.8	49.6	-- -	56*	44
1952	46.9	46.0	46.0	46.9	49.2	51.9	53.8	54.8	54.4	53.7	51.9	49.7	50.4	57	45
1953	48.3	47.7	47.3	47.5	49.4	50.9	53.8	54.7	54.4	54.3	52.3	50.4	50.9	56	47
1954	48.5	47.4	46.5	47.0	49.2	50.5	52.9	53.4	53.2	52.6	51.4	49.5	50.2	55	46
1955	48.2	47.1	45.8	46.0	47.3	50.3	52.2	53.1	53.2	52.3	49.5	47.7	49.4	54	45
Mean	47.5	46.7	46.7	48.0	50.5	53.3	55.3	55.8	55.2	53.8	51.4	49.3	51.1		
Max.	52	50	54	61	64	64	69	64	61	60	59	54		69	
Mean Max.	49.0	47.7	48.0	50.0	53.4	56.2	57.9	57.7	56.9	55.4	53.0	50.7			
Mean Min.	46.0	45.8	45.8	46.5	48.4	51.0	53.3	54.3	53.9	52.4	49.9	47.6			
Min.	38	42	43	44	45	48	51	52	52	51	47	42			38
							SEATTLE (Duwamish River, WASH.								
1924	-- -	-- -	-- -	-- -	-- -	-- -	64.0	62.6	59.9	54.1	44.8	39.4	-- -	70*	32*
1925	42.3	44.4	44.8	50.0	-- -	-- -	-- -	-- -	-- -	-- -	-- -	-- -	-- -	--	39*
							TACOMA, WASH.								
1934	-- -	-- -	-- -	-- -	-- -	-- -	57.2	58.5	55.2	53.2	50.0	47.7	-- -	62*	46*
1935	45.1	45.1	45.3	47.3	52.0	55.9	58.1	-- -	-- -	-- -	-- -	-- -	-- -	63*	39*
							OLYMPIA, WASH.								
1923	-- -	-- -	-- -	-- -	-- -	-- -	-- -	-- -	-- -	-- -	51.1	47.1	-- -	--	43*
1924	43.7	46.2	47.7	-- -	-- -	-- -	-- -	-- -	-- -	-- -	-- -	-- -	-- -	--	37*
--															
1934	-- -	-- -	-- -	-- -	-- -	-- -	61.0	61.5	58.8	55.0	50.9	47.3	-- -	65*	41*
1935	44.0	44.4	45.0	49.8	53.6	58.3	-- -	-- -	-- -	-- -	-- -	-- -	-- -	64*	39*

	ANACORTES, WASH.														
1922	43.2	42.8	43.9	45.9	48.0	51.6	53.2	52.9	52.7	50.7	48.2	45.3	48.2	59	42
1923	45.1	43.5	44.6	46.8	48.7	50.9	53.2	53.8	53.2	51.3	48.9	46.9	48.9	59	40
1924	45.3	46.2	46.4	47.3	49.6	-- -	-- -	-- -	-- -	-- -	-- -	-- -	-- -	--	44*
--															
1934	-- -	-- -	-- -	-- -	-- -	-- -	-- -	-- -	-- -	-- -	47.5	46.6	-- -	--	43*
1935	43.9	44.4	44.8	46.4	50.5	52.2	53.8	53.4	52.5	-- -	-- -	-- -	-- -	61	41*
Mean	44.4	44.2	44.9	46.6	49.2	51.6	53.4	53.4	52.8	51.0	48.2	46.3	48.8		
Max.	46	46	47	50	54	59	61	57	59	58	50	48		61	
Mean Max.	45.5	45.3	46.2	48.4	51.6	56.3	58.7	56.9	57.8	55.0	49.7	47.9			
Mean Min.	41.9	42.4	43.5	45.0	47.1	49.4	50.6	51.2	50.6	48.6	46.1	42.5			
Min.	41	40	43	43	46	49	50	50	50	48	45	42			40
	FRIDAY HARBOR, SAN JUAN ISLAND, WASH.‡														
1935	45.1	45.0	45.3	46.0	48.2	49.5	50.7	51.4	50.2	49.3	46.6	46.2	47.8	55	44
1936	45.9	44.1	44.1	45.1	47.7	49.5	51.3	51.8	50.4	49.1	47.2	46.0	47.7	55	43
1937	43.8	42.6	43.9	45.6	47.5	49.3	51.1	51.4	51.1	49.3	48.0	47.3	47.6	55	42
1938	46.0	45.1	45.9	47.1	48.7	50.4	52.0	51.3	50.4	49.5	47.8	46.4	48.4	57	45
1939	45.9	45.0	44.8	46.3	48.4	49.3	51.1	52.3	51.1	49.5	48.4	48.0	48.3	57	44
1940	47.0	46.8	47.1	48.7	50.5	52.2	52.0	51.8	-- -	50.5	48.9	47.5	-- -	56*	47
1941	46.8	46.9	47.8	49.5	50.5	51.3	53.7	53.4	51.8	50.9	49.6	48.2	50.0	59	46
1942	46.2	46.7	46.8	48.1	49.5	51.3	-- -	-- -	-- -	-- -	-- -	-- -	-- -	--	45*
1943	-- -	-- -	-- -	-- -	-- -	-- -	-- -	-- -	52.2	50.5	49.3	47.8	-- -	55*	47*
1944	46.8	46.0	46.0	47.1	49.3	50.7	52.5	52.3	51.4	49.8	48.9	47.3	49.0	56	46
1945	45.9	45.7	45.9	46.9	48.9	51.6	52.2	52.5	-- -	50.2	47.8	46.8	-- -	54*	42
1946	46.2	45.5	45.7	47.1	49.1	50.5	52.3	52.7	51.1	49.1	47.3	46.2	48.6	57	44
1947	44.4	44.1	45.1	47.1	49.1	50.9	51.4	52.9	51.3	50.0	48.7	46.8	48.5	55	42
1948	46.0	44.6	44.6	46.0	48.0	50.7	52.5	51.4	50.9	49.1	47.5	45.7	48.1	60	43
1949	43.7	42.8	43.9	45.9	48.2	50.4	50.9	50.5	50.7	48.9	47.8	46.6	47.5	54	42
1950	43.0	42.1	43.3	44.8	46.8	48.4	50.5	51.3	50.9	48.7	47.5	46.6	47.0	56	41
1951	45.5	44.2	43.9	45.7	47.1	-- -	-- -	52.2	51.1	49.5	47.8	46.4	-- -	55*	43
1952	44.2	44.4	44.8	45.9	47.7	49.1	50.7	51.1	-- -	-- -	-- -	-- -	-- -	56*	44*

* Data are incomplete for the part of year in which this extreme occurs. This value is from the months shown.
‡ For temperatures from recording thermometer, see Table 2.

Table 1.—Surface Water Temperatures—*Continued*

Means and Extremes in °F.

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Means	Max.	Min.
FRIDAY HARBOR, SAN JUAN ISLAND, WASH. ‡ -Continued															
Mean	45.4	44.8	45.2	46.6	48.5	50.3	51.7	51.9	51.0	49.6	48.1	46.9	48.3		
Max.	48	47	49	50	56	55	60	59	56	52	51	49		60	
Mean Max.	46.1	45.4	45.9	47.5	50.0	52.3	55.5	55.3	53.1	50.8	49.0	47.5			
Mean Min.	44.5	44.1	44.6	45.7	47.4	49.3	50.2	50.3	50.1	48.8	47.3	45.9			
Min.	41	41	43	44	46	48	49	48	49	48	46	44			41
BLAINE, WASH.															
1934	---	---	---	---	---	---	---	62.4	56.8	51.3	48.4	44.4	---	65*	41*
1935	40.6	43.5	43.9	47.7	53.8	58.8	61.2	59.9	---	---	---	---	---	64*	32*
KETCHIKAN, ALASKA															
1922	41.9	40.8	41.0	41.7	45.2	53.1	54.0	56.7	52.0	48.6	45.0	40.8	46.7	60	37
1923	41.0	41.0	41.1	43.5	47.4	54.7	58.4	58.8	53.8	50.0	46.2	---	---	63	37*
1924	42.2	41.9	42.8	43.9	47.8	54.9	56.7	56.8	52.3	48.0	44.0	42.2	47.8	62	38
1925	42.3	41.5	42.0	43.5	49.8	54.3	55.6	57.0	53.6	48.0	44.9	43.3	48.0	61	39
1926	43.7	43.0	44.6	46.4	50.0	55.6	58.2	59.0	54.6	49.1	46.2	43.6	49.5	62	41
1927	42.1	42.7	42.4	43.9	47.7	55.4	59.7	60.4	53.6	48.7	43.5	41.4	48.5	64	39
1928	40.3	41.0	42.1	44.4	48.7	57.1	58.1	57.0	52.0	48.0	45.1	42.8	48.0	63	37
1929	42.1	41.9	42.3	43.2	48.4	54.0	56.3	57.2	55.8	50.4	46.4	42.3	48.4	61	36
1930	40.8	41.0	40.6	43.5	47.5	53.2	57.6	59.7	52.9	47.5	44.4	43.5	47.7	63	39
1931	42.6	42.8	43.2	45.7	49.6	56.1	58.5	58.8	54.5	49.6	44.2	43.0	49.0	63	40
1932	40.8	41.4	41.4	44.8	49.1	51.8	54.7	57.0	52.9	49.8	44.8	42.0	47.5	60	37
1933	40.8	40.5	41.5	43.2	49.3	52.3	55.0	57.7	53.8	47.3	44.6	39.2	47.1	62	36
1934	40.3	40.1	41.7	45.1	50.7	54.3	55.6	57.2	53.4	48.7	45.3	43.2	47.9	61	38

1935	41.7	39.7	39.9	42.4	46.0	53.8	57.9	55.6	52.7	47.5	41.7	40.6	46.6	66	36
1936	39.4	37.2	39.7	41.2	49.1	57.6	55.9	55.9	52.5	50.5	46.2	39.7	47.1	64	34
1937	38.3	38.3	40.1	41.0	45.9	55.4	57.9	55.4	56.5	51.4	46.6	40.3	47.3	68	34
1938	40.6	39.0	42.8	45.1	48.0	52.3	55.6	55.9	54.3	50.0	45.5	43.3	47.7	60	34
1939	42.1	41.4	42.3	43.3	48.2	54.0	56.5	55.6	52.7	47.5	45.0	43.0	47.6	62	36
1940	43.0	42.6	43.0	46.2	50.2	55.4	58.8	57.4	54.7	50.7	45.5	44.2	49.3	64	39
1941	43.5	43.0	44.2	46.2	49.8	54.3	57.6	58.0	54.1	50.0	46.0	44.0	49.3	64	37
1942	41.5	41.0	42.3	44.0	48.9	59.0	61.5	59.7	55.4	49.8	41.5	41.4	48.8	68	34
1943	38.8	41.7	40.5	45.3	48.6	53.4	54.3	53.8	-- -	48.2	45.3	44.4	-- -	65	36
1944	41.5	41.4	41.7	45.1	47.5	50.9	56.3	56.3	55.2	50.4	45.3	41.9	47.8	61	32
1945	42.4	41.5	42.6	44.4	50.4	53.6	55.8	57.1	52.8	48.9	42.6	42.1	47.8	59	32
1946	41.7	41.5	41.4	43.0	49.3	55.9	57.4	57.6	54.5	48.7	43.7	41.5	48.0	60	39
1947	38.7	39.9	41.7	43.2	48.6	54.5	56.5	56.1	54.3	48.9	45.3	42.6	47.5	60	34
1948	41.9	39.6	41.7	43.5	48.9	57.2	57.9	58.1	52.7	48.0	44.2	40.5	47.8	62	35
1949	40.6	39.6	40.5	41.9	48.0	52.0	55.6	56.3	54.1	48.3	46.6	41.6	47.1	58	37
1950	39.4	39.6	39.8	40.9	45.0	54.8	56.1	57.5	54.0	48.3	43.1	42.6	46.8	62	37
1951	40.0	40.9	40.1	41.9	47.7	53.5	58.2	58.0	53.8	47.6	44.3	42.2	47.4	62	38
1952	41.8	39.9	40.8	41.9	47.8	52.4	56.3	56.9	53.2	50.8	46.6	43.8	47.7	60	36
1953	42.2	42.7	41.7	44.2	48.5	55.6	57.8	58.1	54.2	49.7	45.8	44.0	48.7	61	38
1954	42.3	41.1	41.5	42.5	46.9	52.1	55.0	57.4	55.0	49.1	47.0	43.5	47.8	60	37
1955	42.4	41.4	42.1	43.8	46.4	52.1	56.1	55.0	53.2	47.8	42.4	41.7	47.0	58	38
Mean	41.3	41.0	41.7	43.6	48.3	54.3	56.9	57.2	53.8	49.0	44.8	42.3	47.8		
Max.	47	49	46	52	59	68	68	65	67	59	61	50		68	
Mean Max.	43.4	43.1	43.4	46.8	53.1	58.7	60.7	60.9	57.4	51.9	47.9	45.1			
Mean Min.	38.5	38.0	39.3	41.4	44.1	50.1	53.2	54.0	50.6	45.8	41.8	39.0			
Min.	34	32	32	37	39	45	46	46	46	39	36	34			32
							SITKA, ALASKA								
1924	-- -	-- -	-- -	-- -	-- -	-- -	-- -	-- -	-- -	-- -	42.3	39.7	-- -	--	32*
1925	37.4	38.1	38.7	41.4	46.9	50.7	53.6	56.1	52.5	49.5	44.9	43.7	46.1	64	30

‡ For temperatures from recording thermometer, see Table 2.

* Data are incomplete for the part of year in which this extreme occurs. This value is from the months shown.

Table 1.—Surface Water Temperatures—*Continued*

Means and Extremes in °F.

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Means	Max.	Min.
							SITKA, ALASKA -Continued								
1943	— -	— -	— -	— -	49.6	53.1	55.4	57.6	54.0	49.8	45.1	43.7	— -	60	43*
1944	42.8	42.1	41.7	44.1	48.4	52.9	57.0	57.6	54.7	49.3	45.3	42.1	48.2	63	39
1945	42.4	41.5	41.2	43.2	49.8	51.8	53.6	55.4	52.0	48.0	42.3	41.2	46.9	59	39
1946	40.5	40.5	40.1	— -	48.9	53.4	56.5	55.9	53.6	48.6	43.9	39.4	— -	58	37
1947	37.2	38.8	40.3	42.8	48.6	52.2	57.6	57.2	54.1	49.3	45.5	43.5	47.3	63	34
1948	41.7	40.8	40.7	43.0	49.1	53.3	57.2	58.1	53.2	47.9	44.3	40.2	47.5	61	36
1949	38.7	38.7	40.1	42.0	47.2	49.6	54.1	56.3	54.4	49.0	46.4	42.9	46.6	59	36
1950	39.3	38.4	39.9	41.4	46.0	53.8	55.9	58.8	54.2	49.2	44.5	42.0	47.0	64	37
1951	39.8	39.3	38.3	41.4	46.2	51.5	58.8	57.2	54.2	47.8	43.9	42.2	46.7	62	37
1952	39.3	38.1	38.7	40.9	45.3	50.6	54.2	56.0	52.4	49.7	46.3	44.4	46.3	59	36
1953	41.6	39.7	39.9	42.7	47.4	53.4	57.7	58.2	54.4	49.4	45.3	42.8	47.7	61	35
1954	41.0	38.6	38.4	40.7	46.7	51.6	54.7	57.3	54.0	48.2	45.6	41.8	46.6	59	36
1955	41.0	40.3	39.8	42.2	44.7	49.5	55.5	54.2	51.5	46.6	42.8	39.7	45.6	58	37
Mean	40.2	39.6	39.8	42.2	47.5	52.0	55.8	56.8	53.5	48.7	44.6	42.0	46.9		
Max.	44	44	43	48	59	64	63	64	59	54	49	46		64	
Mean Max.	42.3	41.1	41.2	45.2	52.1	56.4	59.3	59.6	56.7	51.8	47.1	44.2			
Mean Min.	37.7	37.5	38.1	39.7	43.6	48.5	52.5	54.4	50.4	45.5	41.5	39.0			
Min.	30	35	35	39	40	45	50	52	47	44	38	32			30
							JUNEAU, ALASKA								
1937	36.0	35.8	38.3	40.8	47.5	53.4	52.7	51.8	49.6	46.0	41.4	36.0	44.1	57	28
1938	37.4	34.7	38.7	42.3	46.6	49.1	52.2	53.7	50.4	45.9	41.5	39.7	44.4	58	30
1939	38.9	36.1	37.2	40.5	46.2	52.0	53.1	50.4	47.7	42.8	40.5	40.3	43.8	57	32

1940	39.0	39.2	38.8	43.5	48.7	54.3	55.4	51.6	-- -	-- -	-- -	-- -	-- -	59	34*
1941	-- -	-- -	-- -	-- -	-- -	-- -	-- -	-- -	-- -	43.3	40.5	38.3	-- -	--	36*
1942	38.3	38.7	38.3	41.4	49.5	52.0	51.6	52.2	49.6	44.6	40.1	36.9	44.4	59	34
1943	34.9	34.5	36.1	39.7	45.5	50.4	48.6	49.3	47.8	44.2	41.9	-- -	-- -	59	31*
1944	39.2	38.8	39.2	41.2	45.1	51.1	50.9	51.3	48.6	45.0	40.6	39.6	44.2	59	33
1945	38.8	37.8	38.5	39.9	46.0	48.7	49.3	50.5	46.7	43.0	37.2	36.3	42.7	54	33
1946	35.8	35.6	36.7	39.6	47.1	51.6	50.7	49.6	49.3	43.7	38.8	35.1	42.8	59	31
1947	34.5	33.8	37.0	39.2	45.5	50.5	51.8	51.0	47.8	43.5	40.6	38.4	42.8	61	29
1948	37.2	35.4	35.6	39.3	45.4	52.2	52.3	51.5	47.4	43.5	40.2	35.6	43.0	58	30
1949	34.5	34.3	37.5	38.9	43.4	48.4	50.9	51.3	49.5	43.7	41.1	37.4	42.6	56	30
1950	32.5	32.7	37.2	39.1	44.1	53.1	52.1	53.6	48.9	-- -	37.1	35.7	-- -	60	30
1951	33.8	32.8	33.2	38.9	44.5	47.4	53.4	51.9	49.9	42.3	39.2	36.2	42.0	61	30
1952	32.5	34.7	36.1	38.6	43.5	48.7	50.1	50.4	47.1	44.4	41.3	39.6	42.2	59	30
1953	36.4	36.5	36.9	40.5	46.6	50.7	51.8	51.5	47.9	44.3	40.7	39.6	43.6	57	31
1954	37.2	35.3	36.5	38.1	45.5	51.4	51.1	52.3	49.6	44.0	42.1	38.1	43.4	57	31
1955	37.5	37.4	36.4	39.7	43.2	47.7	51.7	48.9	47.3	43.1	37.8	35.5	42.2	56	31
Mean	36.4	35.8	37.1	40.1	45.8	50.7	51.6	51.3	48.5	44.0	40.1	37.5	43.2		
Max.	42	40	41	48	59	59	61	59	57	48	45	42		61	
Mean Max.	38.8	38.1	38.9	43.4	52.1	56.7	56.5	55.7	52.2	47.1	42.6	39.7			
Mean Min.	32.8	32.8	34.5	37.0	41.5	45.0	47.1	48.1	45.3	40.7	36.6	34.2			
Min.	29	30	30	33	39	39	43	46	43	35	32	28			28

HAINES, ALASKA

1949	34.6	-- -	37.8	40.8	48.6	51.3	54.1	53.5	50.8	43.2	39.8	35.4	-- -	60	32*
1950	-- -	30.4	36.7	38.8	47.0	58.0	55.8	56.2	51.3	45.2	36.4	34.9	-- -	65	29*
1951	32.2	-- -	-- -	-- -	-- -	-- -	-- -	-- -	-- -	-- -	-- -	-- -	-- -	--	30*

* Data are incomplete for the part of year in which this extreme occurs. This value is from the months shown.

Table 1.—Surface Water Temperatures—*Continued*

Means and Extremes in °F.

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Means	Max.	Min.
							SKAGWAY, ALASKA								
1944	-- -	-- -	-- -	-- -	-- -	-- -	-- -	48.9	46.8	43.2	40.1	38.5	-- -	54*	36*
1945	37.8	36.5	37.2	39.0	45.7	50.7	50.0	50.7	48.4	43.5	38.1	37.4	42.9	56	32
1946	36.3	36.0	36.5	38.5	46.0	51.1	51.8	49.8	48.6	43.3	39.9	37.8	43.0	56	33
1947	35.1	36.0	37.2	39.0	44.8	50.2	51.3	49.5	47.7	45.3	42.3	39.9	43.2	55	30
1948	39.2	37.2	37.0	37.8	-- -	-- -	-- -	-- -	-- -	-- -	-- -	-- -	-- -	--	34*
1949	-- -	-- -	-- -	-- -	45.3	49.5	50.5	50.6	-- -	43.4	41.6	38.5	-- -	55	37*
1950	36.9	36.0	36.4	38.0	44.7	51.3	51.6	49.9	48.0	45.7	38.9	36.6	42.8	55	35
1951	35.6	33.7	34.0	37.1	45.9	51.4	54.2	52.6	47.0	40.6	38.1	36.1	42.2	59	32
1952	34.2	34.8	35.2	37.3	42.9	49.5	50.9	50.5	45.5	43.3	41.2	39.5	42.1	56	33
1953	37.0	37.0	37.0	38.4	46.8	51.2	50.2	50.1	48.4	43.3	40.9	38.9	43.3	55	34
1954	37.5	36.2	35.9	36.8	44.5	50.7	51.6	50.9	47.6	43.6	41.3	38.6	42.9	54	34
1955	37.2	36.7	36.6	38.6	44.8	48.9	49.5	49.2	48.6	44.8	36.1	34.9	42.2	52	33
Mean	36.7	36.0	36.3	38.0	45.1	50.4	51.2	50.2	47.7	43.6	39.9	37.9	42.8		
Max.	40	39	39	43	56	56	59	56	55	48	44	42		59	
Mean Max.	38.3	37.3	37.6	41.2	50.8	54.0	54.8	53.5	51.0	46.2	42.1	39.4			
Mean Min.	34.2	34.0	35.0	35.9	40.1	46.9	48.0	47.4	43.7	40.5	37.6	36.2			
Min.	30	32	32	35	38	44	46	45	41	36	33	34			30
							YAKUTAT, ALASKA								
1941	42.4	42.6	42.8	46.6	-- -	-- -	-- -	58.3	56.1	-- -	46.8	42.4	-- -	61*	39
1942	42.8	43.2	41.7	43.9	51.4	52.9	58.1	56.1	-- -	49.1	45.7	40.1	-- -	63	37
1943	38.3	37.6	-- -	41.7	46.9	52.2	55.6	56.1	51.4	48.2	46.2	43.7	-- -	61	35*
1944	41.5	40.5	40.5	42.3	46.0	52.9	55.0	56.1	52.0	48.6	43.7	41.4	46.7	59	37

1945	42.3	41.4	40.6	43.2	47.5	51.6	53.8	53.8	51.8	47.5	42.6	39.9	46.3	61	37
1946	39.4	38.8	39.2	40.6	46.4	53.1	55.4	53.6	52.9	49.3	45.6	39.9	46.2	58	38
1947	38.2	35.7	38.5	40.8	45.8	50.7	55.7	56.3	52.1	49.5	46.2	44.2	46.1	60	34
1948	41.1	39.8	39.2	42.2	48.0	53.9	56.7	56.3	51.7	46.6	42.2	37.6	46.3	64	35
1949	37.0	36.0	38.4	40.4	45.5	48.6	52.2	53.7	52.2	47.2	44.2	40.4	44.6	56	35
1950	37.5	36.6	37.9	40.0	43.6	51.0	55.3	57.0	52.0	48.1	42.8	39.8	45.1	62	35
1951	37.9	36.9	36.8	41.9	46.7	50.7	55.9	55.6	52.9	49.0	43.6	40.1	45.7	61	35
1952	36.2	37.9	38.5	40.1	43.6	48.6	53.4	53.9	51.0	47.9	44.4	42.3	44.8	57	33
1953	37.7	38.4	38.5	41.9	45.9	51.0	56.3	54.9	52.5	47.2	43.4	42.1	45.8	59	34
1954	39.0	37.4	38.4	40.1	43.8	51.3	53.5	54.1	53.3	48.5	44.6	39.8	45.3	55	34
1955	39.5	37.7	37.7	40.7	42.9	48.4	54.3	52.3	49.7	45.6	40.2	36.7	43.8	59	31
Mean	39.4	38.7	39.2	41.8	46.0	51.2	55.1	55.2	52.3	48.0	44.1	40.7	46.0		
Max.	45	46	46	49	54	61	64	62	59	53	50	46		64	
Mean Max.	41.6	40.8	41.0	45.5	49.9	56.7	58.8	58.4	54.9	50.9	47.1	43.6			
Mean Min.	36.9	37.0	36.8	38.8	41.7	46.9	51.1	53.0	49.7	45.3	41.1	37.7			
Min.	33	34	31	36	39	44	48	50	48	43	36	32			31
CORDOVA, ALASKA															
1949	-- -	-- -	-- -	-- -	-- -	46.3	50.1	52.2	50.2	43.5	-- -	39.4	-- -	57	30*
1950	37.2	36.2	35.9	38.5	41.3	44.7	49.0	52.4	49.8	46.0	39.8	40.2	42.6	55	31
1951	-- -	34.8	33.3	35.2	41.3	-- -	51.1	53.0	50.3	44.4	40.1	38.2	-- -	56*	32*
1952	36.1	36.0	35.7	-- -	41.9	47.2	48.5	51.6	49.6	46.7	44.7	43.1	-- -	56	34
1953	39.9	36.1	37.8	41.3	-- -	-- -	-- -	-- -	50.1	46.8	-- -	-- -	-- -	52*	33*
Mean	37.7	35.8	35.7	38.3	41.5	46.1	49.7	52.3	50.0	45.5	41.5	40.2	42.9		
Max.	46	39	40	45	45	52	56	57	56	49	45	44		57	
Mean Max.	41.3	38.0	37.2	41.0	44.3	49.7	54.0	55.5	53.0	47.4	43.0	42.0			
Mean Min.	34.7	33.8	33.0	36.7	39.0	42.7	47.4	49.8	46.0	43.2	38.7	36.1			
Min.	32	33	31	34	38	42	46	48	44	41	34	30			30

* Data are incomplete for the part of year in which this extreme occurs. This value is from the months shown.

Table 1.—Surface Water Temperatures—*Continued*

Means and Extremes in °F.

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Means	Max.	Min.
							SEWARD, ALASKA								
1926	39.6	38.5	39.0	42.4	47.3	52.7	53.6	54.9	53.2	47.8	43.0	43.0	46.2	60	32
1927	40.2	39.4	38.8	40.3	44.6	49.8	53.2	51.4	-- -	45.3	38.3	-- -	-- -	59	32*
1928	-- -	-- -	37.8	40.4	45.0	52.5	52.3	54.0	50.0	44.8	41.2	39.0	-- -	63	36*
1929	38.1	37.8	36.3	39.4	45.4	54.3	57.2	56.8	54.9	-- -	37.4	39.6	-- -	64	32
1930	39.6	37.4	39.9	41.4	45.5	51.1	53.2	52.5	50.0	44.4	41.2	39.0	44.6	59	36
1931	38.8	37.9	39.0	41.5	44.6	51.3	53.6	54.9	51.1	47.5	42.8	40.8	45.3	59	35
1932	38.7	37.0	37.6	39.9	44.6	50.5	54.9	53.4	50.1	45.7	43.0	40.6	44.7	60	36
1933	38.7	37.2	37.0	38.8	45.5	52.0	54.5	52.3	50.9	45.7	41.7	40.1	44.5	61	33
1934	36.3	36.7	37.9	40.5	47.1	53.6	54.0	55.0	51.6	46.9	43.5	41.4	45.4	64	34
1935	39.6	39.2	40.3	41.4	46.4	55.4	55.6	55.4	52.3	46.2	42.1	39.6	46.1	60	35
1936	37.6	38.8	38.5	42.1	46.9	55.9	59.0	58.6	52.3	47.5	43.5	42.4	46.9	65	35
1937	39.9	39.4	38.5	40.3	46.2	51.6	55.8	54.9	51.6	48.7	45.0	40.6	46.0	60	32
1938	38.7	37.9	38.3	42.3	44.8	50.5	53.4	55.6	49.8	45.7	41.0	39.0	44.8	60	34
1939	37.6	38.5	38.5	41.9	-- -	54.0	54.3	52.5	53.1	46.0	43.2	41.2	-- -	60	35
--															
1944	-- -	-- -	-- -	-- -	-- -	-- -	-- -	-- -	-- -	45.7	43.2	40.6	-- -	--	37*
1945	38.7	39.2	39.2	41.4	45.9	51.8	52.9	51.2	49.9	44.4	41.2	38.1	44.5	58	34
1946	-- -	38.5	38.1	38.8	43.9	49.1	51.4	49.6	48.6	45.5	42.4	39.7	-- -	56	36*
1947	34.5	34.7	36.5	38.7	43.5	48.0	51.8	53.2	50.2	46.8	43.5	42.3	43.6	57	29
1948	39.9	-- -	-- -	-- -	-- -	-- -	-- -	54.2	49.1	44.7	-- -	-- -	-- -	56*	36*
1949	-- -	-- -	-- -	-- -	43.9	47.2	50.5	51.7	48.0	46.2	42.4	40.6	-- -	56	36*
1950	38.5	36.5	36.8	38.8	43.4	47.6	51.2	52.8	48.0	46.8	43.4	39.1	43.6	59	34
1951	36.2	-- -	36.1	37.9	44.9	46.4	55.3	54.7	50.4	46.4	43.4	-- -	-- -	59	32*
1952	-- -	-- -	-- -	-- -	-- -	49.2	52.0	53.0	50.1	44.7	43.0	41.1	-- -	59	33*
1953	39.0	37.0	38.4	40.8	45.7	50.6	53.9	52.8	50.2	46.0	41.7	40.6	44.7	58	31
1954	39.4	36.6	36.8	40.3	45.7	50.1	53.4	53.2	51.9	47.0	42.9	39.7	44.8	58	34
1955	37.2	38.3	38.1	38.6	43.4	46.8	51.5	-- -	-- -	44.4	40.7	38.7	-- -	58*	33

Mean	38.4	37.8	38.1	40.4	45.2	50.9	53.7	53.7	50.8	46.0	42.2	40.3	44.8		
Max.	44	42	44	47	54	61	65	64	59	54	49	46		65	
Mean Max.	40.9	39.9	40.1	43.6	50.0	56.2	58.9	58.4	55.4	50.1	45.8	43.0			
Mean Min.	35.4	34.8	35.8	37.6	40.5	45.3	48.2	48.7	46.2	41.4	38.1	36.8			
Min.	32	29	32	34	32	42	42	44	44	36	32	32			29
KODIAK, KODIAK ISLAND, ALASKA															
1889	38.6	38.0	39.8	-- -	45.0	47.0	50.3	50.7	50.1	46.9	43.3	39.8	-- -	57	33
1890	37.4	36.0	35.8	36.8	41.0	45.2	47.6	51.1	48.8	44.4	41.0	36.8	41.8	54	32
--															
1935	-- -	-- -	-- -	-- -	43.5	47.1	49.6	50.7	49.8	45.1	41.7	38.3	-- -	54	36*
1936	39.0	39.0	37.6	39.7	43.2	47.7	-- -	-- -	-- -	-- -	-- -	-- -	-- -	54*	35*
Mean	38.3	37.7	37.7	38.2	43.2	46.8	49.2	50.8	49.6	45.5	42.0	38.3	43.1		
Max.	41	41	41	43	48	54	57	54	54	49	45	42		57	
Mean Max.	40.2	39.2	38.8	40.3	46.3	51.2	53.6	52.8	52.0	48.2	44.0	40.4			
Mean Min.	36.2	33.6	35.4	35.7	41.3	43.7	46.4	49.6	47.8	42.8	39.4	36.0			
Min.	35	32	33	34	39	42	44	49	47	38	38	33			32
WOMENS BAY, KODIAK ISLAND, ALASKA															
1950	-- -	-- -	-- -	-- -	-- -	46.1	51.3	54.9	48.8	44.7	35.2	33.1	-- -	61	31*
1951	32.0	33.4	33.2	39.6	44.2	47.6	56.7	55.4	51.5	44.9	40.3	35.1	42.8	63	28
1952	31.3	32.3	35.1	36.7	42.9	48.7	51.1	54.2	50.5	46.3	40.5	34.8	42.0	59	29
1953	34.2	32.8	35.7	39.5	42.9	49.2	55.1	54.1	51.1	43.5	38.5	37.8	42.9	60	29
1954	33.7	31.1	32.6	39.1	44.3	47.6	53.5	47.7	52.2	45.4	40.8	32.9	41.7	60	28
1955	32.6	32.9	35.3	39.3	43.9	47.7	53.5	54.9	49.6	42.9	37.6	32.7	41.9	62	27
Mean	32.8	32.5	34.4	38.8	43.6	47.8	53.5	53.5	50.6	44.6	38.8	34.4	42.1		
Max.	38	37	39	46	49	60	63	62	55	52	45	40		63	
Mean Max.	36.8	36.0	37.8	42.4	47.2	54.8	60.3	58.7	53.8	49.2	42.5	38.2			
Mean Min.	29.4	29.8	31.2	34.8	40.0	42.0	48.7	49.7	46.7	39.5	33.8	30.8			
Min.	28	29	30	32	39	39	46	42	43	38	30	27			27

* Data are incomplete for the part of year in which this extreme occurs. This value is from the months shown.

Table 1.—Surface Water Temperatures—*Continued*

Means and Extremes in °F.

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Means	Max.	Min.
DUTCH HARBOR, AMAKNAK ISLAND, ALASKA															
1946	-- -	-- -	-- -	-- -	-- -	-- -	46.8	48.0	47.5	44.6	40.6	37.9	-- -	51	36*
1947	36.5	35.4	35.4	39.2	41.4	43.9	46.6	49.4	46.8	42.4	40.5	37.9	41.3	54	33
1948	35.2	36.3	36.1	41.0	41.0	44.2	47.8	49.1	47.1	43.2	39.7	38.3	41.6	52	33
1949	36.3	36.7	37.6	38.7	40.6	45.3	51.4	49.5	45.5	42.6	40.1	37.9	41.8	54	34
1950	38.1	35.6	37.6	38.5	40.9	44.5	47.4	51.7	46.3	42.8	39.9	37.9	41.8	64	34
1951	36.5	37.6	37.5	39.7	43.3	45.7	50.4	50.3	46.8	43.8	40.8	38.7	42.6	56	35
1952	38.5	37.0	37.5	37.8	41.6	43.0	46.5	47.2	45.7	44.2	40.9	38.2	41.5	50	36
1953	36.5	35.5	37.8	40.5	42.6	45.0	50.4	51.2	48.8	45.1	41.5	40.0	42.9	53	34
1954	36.4	34.0	36.6	39.2	42.7	46.6	-- -	50.1	48.4	44.8	42.0	38.7	-- -	54*	32
1955	37.9	37.7	38.7	38.8	40.5	-- -	45.6	-- -	-- -	-- -	-- -	-- -	-- -	--	35*
Mean	36.9	36.2	37.2	39.3	41.6	44.8	48.1	49.6	47.0	43.7	40.7	38.4	42.0		
Max.	40	39	40	44	48	52	54	64	54	48	44	41		64	
Mean Max.	38.8	37.3	38.9	42.0	44.3	48.2	51.1	54.0	50.0	45.8	42.5	40.2			
Mean Min.	35.0	34.6	35.3	36.7	39.2	41.9	44.4	46.2	45.1	41.8	38.2	36.4			
Min.	33	32	34	34	37	40	43	43	44	40	36	34			32
UNALASKA, UNALASKA ISLAND, ALASKA															
1955	-- -	-- -	-- -	-- -	40.3	44.6	48.9	49.8	45.7	40.5	39.0	36.5	-- -	59	31*
SWEEPER COVE, ADAK ISLAND, ALASKA															
1944	35.1	36.0	36.7	38.3	40.6	43.5	-- -	-- -	-- -	43.9	41.2	37.8	-- -	--	32
1945	36.9	37.2	37.6	41.0	43.3	46.0	48.4	48.6	47.8	44.2	40.5	38.1	42.5	53	32
1946	36.3	36.7	36.7	37.2	42.4	45.3	47.3	48.6	48.0	43.3	39.6	38.3	41.6	58	32
1947	35.4	36.4	37.6	38.8	39.1	43.2	44.0	45.5	45.4	42.0	40.7	38.1	40.5	49	29
1948	37.0	37.3	38.3	39.9	41.6	43.7	44.8	45.3	47.0	42.2	38.4	37.6	41.1	51	34
1949	-- -	36.9	36.8	38.6	41.1	42.6	49.3	44.8	43.7	-- -	-- -	-- -	-- -	56	34*

1950	-- -	-- -	38.3	37.0	40.7	42.6	43.5	47.2	45.2	42.9	40.1	39.3	-- -	53	32*
1951	37.3	37.9	38.0	39.3	41.3	44.8	45.8	47.4	47.2	43.0	41.0	39.1	41.8	54	33
1952	38.1	36.7	37.5	38.7	42.3	42.5	45.1	46.2	46.4	42.9	40.3	35.9	41.0	55	30
1953	36.3	35.3	38.8	39.6	41.2	45.5	47.4	48.2	45.9	43.2	40.1	37.0	41.5	54	32
1954	36.0	35.7	37.1	38.7	40.4	43.7	44.0	45.6	47.0	42.7	39.8	37.7	40.7	52	30
1955	37.5	-- -	38.3	38.7	40.0	42.8	45.5	48.0	45.7	42.0	40.0	38.2	-- -	55	34*
Mean	36.6	36.6	37.6	38.8	41.2	43.8	45.9	46.9	46.3	42.9	40.2	37.9	41.2		
Max.	40	42	44	45	47	54	58	57	52	48	46	46		58	
Mean Max.	39.0	38.8	40.5	42.0	45.0	49.0	51.9	52.8	49.7	46.0	42.8	41.4			
Mean Min.	33.1	33.5	34.3	35.8	38.1	40.1	41.7	42.9	43.8	40.0	37.0	33.7			
Min.	29	32	30	32	36	38	40	40	40	38	34	30			29
CONSTANTINE HARBOR, AMCHITKA ISLAND, ALASKA															
1944	-- -	-- -	-- -	-- -	-- -	42.1	43.0	44.4	44.2	42.6	41.0	38.7	-- -	48	37*
1945	37.8	-- -	-- -	-- -	-- -	-- -	44.1	45.2	45.1	43.5	40.6	38.7	-- -	49	36*
1946	37.6	-- -	-- -	-- -	-- -	43.3	44.1	45.1	45.3	42.4	40.1	38.8	-- -	50	36*
1947	37.6	37.2	-- -	-- -	-- -	39.9	41.4	43.5	43.2	41.9	40.3	38.1	-- -	48	36*
1948	36.9	36.9	37.6	40.1	-- -	42.4	44.2	45.0	44.6	42.2	-- -	-- -	-- -	51	35*
Mean	37.5	37.0	37.6	40.1	-- -	41.9	43.4	44.6	44.5	42.5	40.5	38.6	-- -		
Max.	39	38	38	43	--	46	51	49	50	46	42	40		51	
Mean Max.	38.5	37.9	-- -	-- -	-- -	44.5	47.2	48.2	47.4	44.2	41.6	40.0			
Mean Min.	36.0	36.0	-- -	-- -	-- -	40.6	40.9	42.4	42.5	40.6	38.7	37.2			
Min.	35	35	36	37	--	39	40	42	42	39	37	36			35
MASSACRE BAY, ATTU ISLAND, ALASKA															
1946	-- -	-- -	-- -	-- -	40.3	44.2	46.8	50.4	50.0	45.0	40.6	-- -	-- -	59	--
1947	-- -	-- -	-- -	-- -	-- -	-- -	-- -	-- -	-- -	43.1	40.0	37.3	-- -	--	36*
1948	36.3	35.8	37.4	38.7	41.5	45.7	47.5	-- -	-- -	-- -	-- -	37.6	-- -	52*	34
1949	35.4	35.4	36.1	37.9	40.5	42.3	43.3	46.4	46.3	43.5	39.3	34.9	40.1	51	31

* Data are incomplete for the part of year in which this extreme occurs. This value is from the months shown.

Table 1.—Surface Water Temperatures—*Continued*

Means and Extremes in °F.

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Means	Max.	Min.
MASSACRE BAY, ATTU ISLAND, ALASKA -Continued															
1950	38.9	37.4	36.5	38.5	41.4	46.1	48.3	49.1	47.8	44.5	40.6	38.4	42.3	52	33
1951	37.3	37.3	35.3	37.9	-- -	45.0	46.2	50.0	48.6	44.5	40.6	37.5	-- -	53	30
1952	35.3	33.6	33.8	36.5	40.2	42.8	48.1	49.2	48.2	-- -	-- -	-- -	-- -	55	29*
1953	34.8	33.9	35.2	37.2	39.0	42.0	48.0	47.8	47.4	44.3	39.6	36.1	40.4	55	33
1954	35.1	34.4	35.1	38.1	39.7	43.8	47.2	49.3	47.4	43.3	40.2	37.0	40.9	58	32
1955	34.2	35.3	35.8	37.4	39.6	43.2	45.9	50.2	47.4	44.3	41.0	38.6	41.1	58	32
Mean	35.9	35.4	35.6	37.8	40.3	43.9	46.8	49.0	47.9	44.1	40.2	37.2	41.2		
Max.	40	42	40	43	48	52	55	59	53	50	44	41		59	
Mean Max.	37.5	37.5	38.0	40.0	42.9	48.7	51.7	54.2	50.7	46.8	42.6	39.6			
Mean Min.	34.1	32.5	33.1	35.3	37.9	40.7	43.3	45.6	45.5	41.1	37.5	34.7			
Min.	32	29	30	34	36	39	42	43	43	40	34	31			29
PORT MOLLER, ALASKA															
1948	-- -	-- -	-- -	-- -	-- -	-- -	-- -	-- -	51.6	43.0	36.0	(ice)	-- -	--	(ice)
1949	(ice)	(ice)	32.7	33.6	40.6	50.7	53.2	55.4	53.2	45.3	39.9	33.3	-- -	58	(ice)
1950	31.8	(ice)	30.9	-- -	-- -	-- -	-- -	-- -	-- -	-- -	-- -	-- -	-- -	--	(ice)
--															
1955	-- -	-- -	-- -	-- -	-- -	45.5	51.0	52.9	-- -	-- -	-- -	-- -	-- -	56	--
PEARD BAY, ALASKA															
1947	-- -	-- -	-- -	-- -	-- -	-- -	-- -	-- -	36.1	-- -	-- -	-- -	-- -	--	--
POINT BARROW (Ocean), ALASKA															
1945	-- -	-- -	-- -	-- -	-- -	-- -	-- -	-- -	31.5	-- -	-- -	-- -	-- -	--	--
--															
1951	-- -	-- -	-- -	-- -	-- -	-- -	44.2	-- -	-- -	-- -	-- -	-- -	-- -	--	--

	POINT BARROW (Elson Lagoon), ALASKA														
1945	-- -	-- -	-- -	-- -	-- -	-- -	-- -	-- -	31.3	-- -	-- -	-- -	-- -	--	--
--															
1951	-- -	-- -	-- -	-- -	-- -	-- -	45.5	-- -	-- -	-- -	-- -	-- -	-- -	--	--
	MIDWAY ISLANDS, HAWAIIAN ISLANDS														
1944	-- -	-- -	67.1	70.0	-- -	76.6	79.2	80.2	78.4	76.3	72.3	70.7	-- -	82	66*
1945	68.4	65.7	69.6	70.3	71.6	76.3	-- -	-- -	-- -	-- -	-- -	-- -	-- -	--	63*
1946	-- -	-- -	-- -	-- -	-- -	-- -	78.8	79.0	79.3	75.4	72.5	70.0	-- -	82	66*
1947	66.0	65.3	65.3	68.5	72.7	77.4	79.2	80.8	79.7	78.1	73.0	69.1	72.9	83	62
1948	66.7	66.2	68.7	68.2	71.2	75.6	77.9	80.1	-- -	77.0	73.7	71.5	-- -	82*	62
1949	68.0	68.4	70.8	73.2	-- -	-- -	-- -	-- -	80.2	-- -	75.0	71.8	-- -	84*	65
1950	68.8	69.8	70.0	71.3	-- -	-- -	-- -	81.6	81.8	80.8	75.8	72.3	-- -	85*	65
1951	70.6	70.0	67.8	70.9	73.5	76.5	80.2	80.8	81.0	79.0	76.4	71.9	74.9	84	64
1952	68.0	68.2	70.2	71.5	75.7	78.7	81.0	80.5	80.8	76.5	74.0	72.2	74.8	83	62
1953	68.0	68.5	70.0	71.7	73.8	76.5	80.8	81.5	79.5	77.0	74.5	70.4	74.4	83	64
1954	66.8	65.6	66.7	68.0	71.3	77.1	78.5	79.3	78.5	78.3	73.4	69.9	72.8	82	62
1955	67.5	66.6	66.6	69.4	74.0	78.8	80.2	80.0	79.5	76.5	73.2	-- -	-- -	82	64
Mean	67.9	67.4	68.4	70.3	73.0	77.1	79.5	80.4	79.9	77.5	74.0	71.0	73.9		
Max.	73	72	75	77	80	81	83	85	84	84	78	78		85	
Mean Max.	70.6	69.3	71.8	74.0	76.2	80.0	81.5	82.2	82.0	80.4	77.0	74.2			
Mean Min.	64.5	64.9	65.3	66.9	69.8	73.5	77.5	78.6	77.4	74.2	69.6	67.6			
Min.	62	62	64	64	68	70	76	77	76	72	62	64			62
	HONOLULU, HAWAIIAN ISLANDS														
1945	-- -	-- -	75.9	77.7	79.5	79.9	81.0	80.8	81.0	80.8	79.9	77.9	-- -	82	74*
1946	76.6	76.6	75.7	74.8	76.6	77.7	78.6	80.2	80.4	79.7	78.1	77.0	77.7	83	73
1947	74.8	75.9	75.4	76.5	77.2	79.3	80.1	80.1	80.8	80.1	79.5	77.4	78.1	82	72
1948	75.6	75.2	75.0	76.3	78.1	78.8	79.5	79.9	80.2	79.3	77.5	76.5	77.7	82	72
1949	74.7	75.2	74.3	74.5	76.5	78.1	78.4	78.3	79.0	79.0	77.2	76.5	76.8	82	72

* Data are incomplete for the part of year in which this extreme occurs. This value is from the months shown.

Table 1.—Surface Water Temperatures—*Continued*

Means and Extremes in °F.

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Means	Max.	Min.
HONOLULU, HAWAIIAN ISLANDS -Continued															
1950	74.8	76.8	76.3	76.1	77.0	78.1	78.8	80.4	80.8	80.8	78.6	— -	— -	82	73
1951	— -	— -	75.9	77.4	77.9	77.9	79.7	80.4	80.7	80.5	78.1	77.0	— -	83	72*
1952	74.8	75.8	75.0	74.6	75.5	76.3	78.3	79.2	79.4	— -	— -	76.8	— -	82*	73
1953	76.7	77.7	77.7	78.0	78.6	78.8	80.3	80.4	79.7	79.9	78.1	77.3	78.6	82	74
1954	76.5	76.9	76.2	77.9	76.7	78.6	80.2	81.3	81.2	81.3	79.7	76.6	78.6	84	72
1955	75.2	74.6	75.3	76.0	76.8	77.1	78.1	79.0	78.9	78.4	77.5	77.1	77.0	81	69
Mean	75.5	76.1	75.7	76.3	77.3	78.2	79.4	80.0	80.2	80.0	78.4	77.0	77.8		
Max.	79	81	81	81	82	82	84	83	83	83	83	81		84	
Mean Max.	77.4	78.4	78.3	78.2	79.5	80.2	81.2	81.5	81.8	81.4	80.7	79.1			
Mean Min.	72.8	73.9	73.6	74.4	75.5	77.0	77.3	78.7	78.8	78.6	76.5	74.8			
Min.	69	72	72	73	74	76	75	77	77	77	74	72			69
HILO, HAWAIIAN ISLANDS															
1947	71.1	71.8	71.1	71.1	71.4	72.5	71.8	73.8	74.7	73.9	72.3	72.0	72.3	80	64
1948	70.2	— -	71.8	71.8	72.5	75.2	75.4	75.7	75.9	76.1	73.8	70.7	— -	79	66*
1949	68.9	71.4	70.7	68.2	69.6	70.9	71.6	70.7	71.4	72.0	70.7	68.7	70.4	77	66
1950	70.2	69.4	68.0	68.5	68.0	68.5	69.8	71.1	72.0	71.6	72.5	72.1	70.1	81	66
1951	69.6	69.1	68.9	68.7	69.3	70.3	71.4	70.0	72.7	72.1	71.2	71.2	70.4	77	66
1952	69.6	69.4	68.7	68.7	70.2	71.1	72.5	72.0	72.5	73.0	72.5	71.1	70.9	79	68
1953	70.7	70.0	69.3	69.7	71.8	71.3	71.5	72.4	72.7	72.6	71.7	70.7	71.2	77	67
1954	71.0	70.3	69.1	70.9	71.1	72.5	72.5	73.3	72.1	72.6	72.1	70.9	71.5	79	67
1955	69.9	69.5	69.2	69.2	69.4	69.0	70.2	71.4	70.8	72.1	71.9	70.6	70.3	78	66

Mean	70.1	70.1	69.6	69.6	70.4	71.3	71.9	72.3	72.8	72.9	72.1	70.9	71.2		
Max.	77	77	76	76	76	79	79	79	80	81	78	78		81	
Mean Max.	74.0	73.5	72.6	73.0	74.0	74.6	76.4	76.0	76.9	77.1	75.7	73.9			
Mean Min.	67.1	67.4	66.8	67.2	67.9	68.6	69.4	69.4	69.7	69.9	69.3	67.7			
Min.	64	66	66	66	66	66	67	68	68	67	68	66			64
JOHNSTON ISLAND, HAWAIIAN ISLANDS															
1947	-- -	-- -	-- -	-- -	79.0	79.9	80.4	81.3	81.7	80.7	-- -	-- -	-- -	83	--
1948	-- -	74.6	75.9	76.9	78.3	-- -	-- -	-- -	-- -	-- -	-- -	-- -	-- -	--	74*
1949	-- -	74.8	74.1	74.9	76.0	76.3	79.1	-- -	-- -	-- -	-- -	-- -	-- -	80*	72*
1950	-- -	76.6	76.7	77.6	78.4	79.9	80.1	80.6	80.3	79.7	-- -	-- -	-- -	82	74*
1951	76.6	77.0	76.2	77.4	78.7	80.1	81.7	-- -	82.1	81.5	80.6	78.8	-- -	84*	74
1952	78.0	77.3	77.8	77.9	77.9	79.3	80.3	80.9	81.3	80.6	79.0	78.1	79.0	83	75
1953	77.8	77.3	-- -	-- -	-- -	-- -	81.3	81.6	81.9	81.2	79.6	78.4	-- -	83*	75*
1954	77.5	78.0	77.0	79.2	79.2	81.2	82.3	82.6	83.0	82.4	81.2	78.0	80.1	88	74
1955	77.3	75.5	74.8	76.5	77.6	79.1	79.3	79.7	80.4	79.9	79.8	78.7	78.2	84	69
Mean	77.4	76.4	76.1	77.2	78.1	79.4	80.6	81.1	81.5	80.9	80.0	78.4	78.9		
Max.	80	79	79	82	82	83	84	84	85	88	83	81		88	
Mean Max.	79.4	77.9	77.9	79.0	80.4	81.5	82.0	82.7	83.2	82.9	81.6	80.2			
Mean Min.	74.8	74.5	73.6	75.0	76.3	77.1	78.9	79.5	79.6	79.5	78.2	75.6			
Min.	74	72	69	72	73	72	78	78	78	78	77	72			69
CANTON ISLAND, PHOENIX ISLANDS															
1950	-- -	-- -	-- -	-- -	-- -	-- -	80.2	79.9	80.1	80.4	81.1	81.0	-- -	82*	79*
1951	80.9	80.5	81.8	83.4	84.2	83.8	84.2	83.5	83.8	83.8	84.1	83.9	83.2	85	80
1952	83.9	83.0	83.3	84.4	84.4	84.0	83.9	83.8	83.7	83.7	83.9	83.8	83.8	86	82
1953	84.0	83.7	83.9	84.7	84.1	84.7	84.5	84.3	84.5	84.6	84.5	84.0	84.3	86	83
1954	82.7	82.4	83.0	82.5	82.9	82.7	82.1	81.8	81.5	82.3	82.6	81.8	82.4	86	80
1955	81.9	80.8	80.8	81.4	82.2	82.6	81.9	81.3	81.2	81.0	80.5	80.2	81.3	84	79

* Data are incomplete for the part of year in which this extreme occurs. This value is from the months shown.

Table 1.—Surface Water Temperatures—*Continued*

Means and Extremes in °F.

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Means	Max.	Min.
CANTON ISLAND, PHOENIX ISLANDS -Continued															
Mean	82.7	82.1	82.6	83.3	83.6	83.6	82.8	82.4	82.5	82.6	82.8	82.4	82.8		
Max.	84	84	85	86	86	86	86	85	85	85	86	85		86	
Mean Max.	83.4	83.2	83.8	84.6	84.8	84.6	84.0	83.7	83.3	83.2	84.2	83.2			
Mean Min.	81.8	81.2	81.2	82.2	82.6	82.8	82.2	81.8	81.3	82.0	81.8	81.3			
Min.	80	80	79	80	81	82	80	79	79	80	79	79			79
PAGO PAGO, SAMOA ISLANDS															
1950	— -	81.2	81.8	82.6	82.5	80.8	80.3	81.2	82.0	79.7	81.2	79.1	— -	90*	72*
1951	79.5	79.9	79.8	80.7	79.2	78.2	76.3	77.0	77.2	78.3	78.0	81.0	78.8	84	74
1952	81.1	83.2	85.0	84.1	83.2	82.2	81.6	81.5	82.0	81.3	83.1	84.7	82.8	88	79
1953	84.7	84.8	85.2	85.5	83.3	82.4	80.9	79.2	79.2	81.3	82.9	84.0	82.8	87	77
1954	84.0	84.4	84.0	84.0	83.6	82.4	80.9	81.8	82.1	82.7	82.3	83.8	83.0	88	79
1955	84.6	84.1	83.3	83.5	82.5	81.9	81.6	81.2	81.1	82.0	83.2	83.3	82.7	87	78
Mean	82.8	82.9	83.2	83.4	82.4	81.3	80.3	80.3	80.6	80.9	81.8	82.6	81.9		
Max.	87	87	90	88	86	86	84	84	88	85	86	88		90	
Mean Max.	85.4	85.7	86.2	85.7	84.3	84.0	82.5	81.8	83.0	82.8	84.7	85.5			
Mean Min.	79.2	79.8	79.8	81.2	79.5	79.2	78.7	78.8	78.2	79.0	79.7	79.8			
Min.	76	76	75	78	77	76	74	76	75	76	76	72			72
APIA (Observatory), SAMOA ISLANDS															
1944	— -	— -	— -	— -	— -	— -	81.9	81.0	81.5	82.0	82.0	84.0	— -	87*	79*
1945	83.8	83.9	84.5	83.8	82.6	82.2	81.5	81.3	81.3	82.8	83.4	84.9	83.0	87	80
1946	84.6	83.3	84.9	85.3	84.6	82.9	81.9	81.9	82.4	82.8	85.3	85.1	83.8	88	79
1947	84.7	85.1	85.1	85.3	84.0	83.7	82.9	82.2	82.8	83.7	84.2	85.1	84.1	87	78

1948	84.9	84.0	84.6	84.2	83.7	82.9	81.0	81.1	82.0	82.8	84.0	83.3	83.2	87	79
1949	85.1	85.1	84.6	85.5	84.2	82.8	81.9	81.7	83.3	84.0	85.5	84.4	84.0	88	79
1950	84.6	84.0	84.2	84.0	82.8	81.5	81.3	81.7	82.8	83.5	84.6	83.8	83.2	87	80
1951	83.7	85.1	85.3	85.6	84.4	83.2	81.6	— -	82.3	82.8	83.9	84.9	— -	88	80*
1952	85.1	85.5	85.6	84.3	83.8	83.0	82.0	83.0	83.9	82.8	83.7	84.3	83.9	88	80
1953	84.2	84.5	84.9	85.1	83.0	82.0	80.6	79.6	80.5	81.8	83.0	83.9	82.8	88	77
1954	84.2	84.0	83.5	83.7	82.8	81.8	80.7	81.3	83.2	83.0	82.7	83.3	82.8	87	79
1955	83.4	84.0	82.8	82.8	82.6	81.3	80.9	80.5	80.8	82.1	83.2	83.0	82.3	88	78
Mean	84.4	84.4	84.5	84.5	83.5	82.5	81.5	81.4	82.2	82.8	83.8	84.2	83.3		
Max.	88	88	88	88	87	85	86	86	86	87	88	88		88	
Mean Max.	86.6	86.4	86.8	86.3	85.2	84.0	83.2	83.4	84.1	85.2	86.5	86.6			
Mean Min.	81.5	81.7	82.3	82.7	81.5	80.9	79.8	79.6	80.3	80.6	81.3	81.5			
Min.	80	80	78	80	80	80	79	77	78	78	78	79			77
GUADALCANAL ISLAND (Kukum), SOLOMON ISLANDS															
1947	— -	— -	— -	86.9	86.2	84.9	84.2	83.4	84.2	84.6	86.0	86.4	— -	89*	82*
1948	85.2	— -	— -	85.2	— -	84.4	83.4	83.8	84.6	84.5	84.8	85.1	— -	88*	82*
1949	84.8	85.4	84.9	85.8	85.6	85.0	84.1	83.7	83.8	84.2	85.6	— -	— -	88*	83*
ADMIRALTY ISLANDS (Seeadler Harbor)															
1947	— -	85.2	85.1	86.0	84.9	84.9	83.6	85.4	84.1	— -	— -	— -	— -	88*	80*
1948	— -	— -	84.6	— -	84.9	85.3	85.1	85.0	85.4	84.1	— -	— -	— -	88*	80*
WAKE ISLAND															
1950	— -	— -	— -	— -	— -	82.0	81.5	82.3	81.2	80.8	78.4	77.8	— -	85	76*
1951	76.5	77.5	74.9	78.1	79.6	82.0	83.4	84.3	83.5	82.6	80.9	79.1	80.2	86	72
1952	74.5	76.6	78.3	78.9	81.0	82.6	83.1	83.9	— -	— -	80.3	77.6	— -	92*	72
1953	78.3	77.3	76.7	79.6	82.5	84.0	82.8	81.8	82.7	81.8	79.8	77.5	80.4	88	72
1954	77.6	78.1	77.0	78.6	79.6	83.1	84.1	82.5	83.2	81.6	80.4	78.9	80.4	89	73
1955	76.5	77.7	76.8	77.2	78.3	82.6	83.1	83.5	81.5	80.8	78.8	78.7	79.6	87	73

* Data are incomplete for the part of year in which this extreme occurs. This value is from the months shown.

Table 1.—Surface Water Temperatures—*Continued*

Means and Extremes in °F.

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Means	Max.	Min.
WAKE ISLAND -Continued															
Mean	76.7	77.4	76.7	78.5	80.2	82.7	83.0	83.0	82.4	81.5	79.8	78.3	80.0		
Max.	83	81	81	82	86	88	89	92	86	89	84	83		92	
Mean Max.	80.0	79.8	79.8	81.2	83.4	85.5	86.3	86.5	84.8	85.6	82.2	81.0			
Mean Min.	73.6	74.2	73.6	75.8	77.4	80.5	80.5	80.2	80.4	79.0	77.3	75.0			
Min.	72	72	72	74	76	80	78	79	78	78	76	73			72
KWAJALEIN ISLAND, MARSHALL ISLANDS															
1949	-- -	81.0	80.8	80.9	81.7	82.4	83.6	83.5	83.2	83.3	81.9	79.4	-- -	85	76*
1950	78.5	79.5	82.6	82.8	84.2	83.6	83.4	-- -	-- -	-- -	84.2	82.1	-- -	90*	76
1951	80.7	79.9	81.4	82.2	83.2	84.1	83.1	84.5	85.8	85.6	84.5	83.7	83.2	90	77
1952	80.5	81.7	83.7	83.0	83.3	82.0	81.9	83.0	85.5	84.2	82.6	81.7	82.8	93	78
1953	80.2	79.9	-- -	81.0	81.5	81.7	82.0	82.4	83.1	83.6	82.6	81.3	-- -	85	77*
1954	80.7	81.3	81.1	80.8	80.8	81.6	81.7	83.1	83.9	83.8	82.7	82.1	82.0	86	78
1955	81.2	80.8	80.6	80.5	80.9	81.1	82.2	82.7	82.8	84.4	83.5	83.4	82.0	88	78
Mean	80.3	80.6	81.7	81.6	82.2	82.4	82.6	83.2	84.0	84.2	83.1	82.0	82.3		
Max.	85	87	87	86	87	87	90	88	93	88	87	88		93	
Mean Max.	82.8	83.3	84.3	83.6	84.6	84.7	85.1	85.3	86.8	86.2	85.4	84.7			
Mean Min.	78.3	78.1	79.0	79.3	80.1	80.0	80.9	81.5	82.0	81.5	80.7	79.0			
Min.	76	76	78	78	78	78	80	81	81	80	80	76			76
TRUK ISLANDS (Moen Island), CAROLINE ISLANDS															
1949	-- -	-- -	-- -	-- -	-- -	-- -	83.5	84.7	85.1	85.6	83.6	82.4	-- -	89*	80*

1950	81.9	81.1	81.5	83.2	83.6	83.8	85.3	-- -	85.4	83.5	-- -	-- -	-- -	89*	78*
1954	82.7	83.2	82.7	82.5	-- -	-- -	-- -	-- -	-- -	-- -	84.0	83.3	-- -	85*	78*
1952	-- -	-- -	-- -	-- -	-- -	-- -	-- -	-- -	-- -	85.0	84.5	83.7	-- -	87*	81*
1953	82.6	81.8	82.6	84.1	84.3	84.1	84.8	83.5	84.5	85.5	84.3	82.6	83.7	88	77
1954	82.1	81.9	81.9	83.0	82.3	83.7	83.6	84.1	84.1	84.3	84.0	83.4	83.2	87	78
1955	82.3	82.2	82.7	82.2	81.7	82.1	82.8	82.6	83.7	83.9	83.6	83.0	82.7	86	80
Mean	82.3	82.0	82.3	83.0	83.0	83.4	84.0	83.7	84.6	84.6	84.0	83.1	83.3		
Max.	87	85	85	88	86	85	88	86	89	88	87	86		89	
Mean Max.	84.4	83.4	84.0	84.6	85.0	84.5	86.1	86.0	87.4	86.8	85.8	85.2			
Mean Min.	80.2	80.2	80.6	80.8	81.0	81.2	82.1	80.6	82.0	81.5	82.0	80.3			
Min.	78	78	79	80	78	80	80	80	80	80	81	77			77
YAP ISLAND, CAROLINE ISLANDS															
1951	-- -	-- -	83.5	84.9	85.3	85.5	86.6	84.7	86.0	85.3	85.6	84.5	-- -	89*	81*
1952	82.6	82.0	82.6	84.8	86.0	85.3	86.0	84.9	84.4	84.5	84.7	84.3	84.3	89	76
1953	82.6	81.8	-- -	-- -	-- -	-- -	-- -	-- -	-- -	-- -	-- -	-- -	-- -	--	80*
Mean	82.6	81.9	83.0	84.8	85.6	85.4	86.3	84.8	85.2	84.9	85.2	84.4	84.5		
Max.	86	85	85	89	89	88	89	89	89	89	88	87		89	
Mean Max.	85.5	84.5	85.0	87.5	88.5	88.0	89.0	88.0	88.5	88.5	87.5	86.5			
Mean Min.	80.0	80.5	81.0	83.5	82.0	82.0	83.5	82.0	82.0	81.5	80.0	82.0			
Min.	80	80	80	83	81	82	83	82	81	80	76	82			76
ANGAUR ISLAND, PALAU ISLANDS															
1951	-- -	-- -	-- -	-- -	-- -	-- -	-- -	-- -	84.4	84.6	84.2	84.2	-- -	87*	81*
1952	83.1	82.8	82.8	84.0	84.6	-- -	-- -	-- -	-- -	-- -	-- -	-- -	-- -	87*	79*
KOROR, KOROR ISLAND, PALAU ISLANDS															
1947	-- -	82.7	82.8	83.5	-- -	83.7	84.0	84.2	-- -	-- -	-- -	-- -	-- -	87*	81*
--															
1949	-- -	-- -	-- -	84.7	84.5	85.7	85.8	-- -	85.9	85.5	-- -	-- -	-- -	89*	82*
1950	-- -	-- -	81.4	82.5	83.8	84.3	84.6	84.0	84.1	-- -	-- -	-- -	-- -	87*	80*

* Data are incomplete for the part of year in which this extreme occurs. This value is from the months shown.

Table 1.—Surface Water Temperatures—*Continued*

Means and Extremes in °F.

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Means	Max.	Min.
GUAM (Apra Harbor), MARIANAS															
1949	— -	— -	— -	— -	82.7	83.7	84.3	85.4	85.4	84.3	83.4	81.9	— -	87	81*
1950	81.0	80.3	81.0	82.2	83.2	83.9	84.9	84.7	84.5	84.9	83.9	82.9	83.1	88	80
1951	82.1	82.2	82.0	82.0	82.6	83.3	84.3	84.3	85.4	85.7	84.9	83.5	83.5	88	81
1952	81.5	81.4	81.9	82.8	83.8	84.8	85.5	84.8	84.7	84.5	83.6	82.9	83.5	87	80
1953	81.2	80.4	80.9	82.1	83.2	84.0	84.9	84.4	84.9	84.5	84.1	— -	— -	86	80
1954	81.9	81.7	81.8	82.5	82.6	83.8	84.8	85.3	83.5	84.0	83.5	82.3	83.1	86	80
1955	81.0	81.3	82.3	84.3	84.0	84.6	84.4	84.1	84.0	84.0	83.0	81.9	83.2	86	80
Mean	81.4	81.2	81.6	82.6	83.2	84.0	84.7	84.7	84.6	84.6	83.8	82.6	83.2		
Max.	84	84	84	86	86	86	88	87	88	87	86	85		88	
Mean Max.	82.7	82.5	82.8	83.5	84.2	85.2	86.3	86.0	86.3	86.0	84.6	83.5			
Mean Min.	80.2	80.5	80.8	81.5	82.4	82.6	83.1	83.3	83.1	83.4	82.7	81.7			
Min.	80	80	80	81	81	80	82	82	82	82	82	81			80
SAN FERNANDO, LUZON ISLAND, PHILIPPINE ISLANDS															
1948	— -	77.5	79.7	81.9	88.0	84.2	84.4	84.7	82.9	84.0	81.5	81.5	— -	90	77*
1949	80.8	80.8	81.7	84.2	86.0	86.7	85.6	84.7	84.9	84.7	84.4	82.8	83.9	88	80
MANILA, LUZON ISLAND, PHILIPPINE ISLANDS															
1947	— -	— -	— -	— -	— -	— -	84.3	85.6	84.8	84.4	82.0	81.2	— -	87*	76*
1948	79.2	79.9	80.9	82.5	84.4	84.7	84.3	83.0	82.5	83.7	85.2	81.2	82.6	87	77
1949	80.2	79.7	80.8	82.0	84.5	86.9	85.4	86.8	87.9	85.1	83.4	81.4	83.7	92	77
1950	81.6	80.9	81.4	85.2	87.0	86.2	84.0	83.4	85.2	85.8	83.5	81.5	83.8	90	78
1951	81.6	84.9	86.7	86.7	86.2	84.6	84.2	84.1	85.2	86.0	85.0	83.4	84.9	90	80
1952	82.3	81.6	82.2	83.5	85.9	86.6	85.5	82.5	84.8	84.8	84.3	82.0	83.8	90	78
1953	81.5	81.4	83.2	85.9	88.5	86.8	86.3	84.9	86.2	85.6	84.7	82.7	84.8	90	79
1954	82.9	84.8	83.1	86.2	86.2	87.5	87.5	85.2	84.8	86.3	83.0	81.9	85.0	90	79

1955	81.6	82.3	83.2	84.9	86.2	86.7	86.0	86.1	86.2	86.2	85.4	81.8	84.7	89	78
Mean	81.4	81.9	82.7	84.6	86.1	86.2	85.3	84.6	85.3	85.3	84.1	81.9	84.1		
Max.	87	87	87	88	90	90	90	92	90	90	90	89		92	
Mean Max.	84.1	84.0	85.0	86.6	88.4	88.1	87.8	87.4	87.3	88.1	86.9	84.8			
Mean Min.	78.6	79.9	80.5	82.4	84.1	83.7	82.1	81.3	82.0	82.3	81.3	79.3			
Min.	77	78	78	80	82	80	80	78	80	81	79	76			76
LEGASPI, LUZON ISLAND, PHILIPPINE ISLANDS															
1947	-- -	-- -	-- -	-- -	87.6	87.9	85.2	85.1	86.4	84.1	81.7	80.6	-- -	92	77*
1948	78.6	81.2	82.6	86.9	87.7	87.4	86.0	84.4	83.6	85.2	82.2	82.3	84.0	91	75
1949	80.5	82.1	82.8	85.6	87.5	87.1	86.7	86.0	86.7	85.3	83.7	82.2	84.7	93	77
1950	81.1	82.8	83.0	86.5	87.8	85.9	84.4	84.7	85.0	85.0	82.8	80.8	84.2	91	76
1951	81.7	83.0	82.9	83.7	82.7	83.7	84.0	83.1	82.4	82.9	82.1	82.3	82.9	88	76
1952	82.9	82.3	83.3	84.4	85.0	85.4	84.6	83.7	84.6	83.9	84.2	83.9	84.0	89	78
1953	83.9	83.9	83.7	84.1	84.0	83.8	83.7	83.0	83.5	83.8	83.5	81.6	83.5	88	77
1954	83.2	83.3	82.3	85.5	85.5	86.7	87.0	84.4	83.4	83.5	81.4	-- -	-- -	90	78*
1955	77.7	79.5	80.3	82.8	84.8	84.8	84.8	85.2	85.2	84.2	82.3	78.6	82.5	91	76
Mean	81.2	82.3	82.6	84.9	85.8	85.9	85.2	84.4	84.5	84.2	82.7	81.5	83.8		
Max.	88	88	88	90	91	93	92	90	91	88	88	86		93	
Mean Max.	84.6	85.6	86.5	87.9	88.9	89.7	88.8	87.7	88.2	87.4	86.6	85.1			
Mean Min.	77.5	78.2	79.1	81.4	82.6	81.7	81.6	81.2	81.3	80.7	78.6	77.6			
Min.	75	76	77	79	78	78	80	80	80	78	77	76			75
TACLOBAN, LEYTE ISLAND, PHILIPPINE ISLANDS															
1951	-- -	-- -	-- -	-- -	-- -	86.0	85.3	85.7	86.2	86.4	86.0	85.0	-- -	89*	82*
1952	86.1	-- -	86.1	86.1	86.1	86.2	86.1	86.0	85.8	85.1	85.4	85.2	-- -	88*	84*
1953	84.6	84.0	85.0	86.3	86.7	86.0	-- -	86.0	86.1	86.4	86.1	86.0	-- -	88*	82
1954	86.3	85.7	86.1	86.9	86.6	86.4	86.9	86.6	86.5	86.5	85.5	84.7	86.2	88	82
1955	84.0	84.3	85.8	86.1	86.8	-- -	86.7	86.6	86.5	86.2	-- -	84.1	-- -	87*	82

* Data are incomplete for the part of year in which this extreme occurs. This value is from the months shown.

Table 1.—Surface Water Temperatures—*Continued*

Means and Extremes in °F.

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Means	Max.	Min.
							TACLOBAN, LEYTE ISLAND, PHILIPPINE ISLANDS -Continued								
Mean	85.2	84.7	85.8	86.4	86.6	86.2	86.2	86.2	86.2	86.1	85.8	85.0	85.9		
Max.	87	86	88	87	88	88	88	87	89	88	87	87		89	
Mean Max.	86.8	85.3	87.0	87.0	87.2	87.2	87.2	86.8	87.4	87.2	86.5	86.2			
Mean Min.	83.8	83.3	84.8	85.5	86.0	85.2	85.5	85.6	85.4	85.4	84.5	83.4			
Min.	82	83	83	85	86	84	84	85	84	84	83	82			82
							CEBU, CEBU ISLAND, PHILIPPINE ISLANDS								
1947	— -	— -	— -	— -	86.4	86.6	86.3	85.4	85.5	84.4	82.2	82.1	— -	89	79*
1948	79.2	81.7	82.0	84.8	86.1	86.5	85.2	84.3	83.7	84.9	82.9	82.1	83.6	88	72
1949	80.8	80.8	81.5	84.0	84.9	85.8	85.2	85.3	85.9	84.8	83.5	82.4	83.7	88	79
1950	81.6	82.3	83.6	85.5	86.7	86.4	85.7	85.3	84.4	85.2	83.2	80.8	84.2	88	80
1951	81.1	81.5	82.4	84.6	84.8	85.3	85.4	84.7	84.8	85.3	84.8	82.2	83.9	88	79
1952	81.5	81.5	82.2	84.8	85.9	85.6	84.9	83.9	84.7	84.2	84.4	83.0	83.9	88	80
1953	80.8	80.9	83.2	85.4	86.6	86.2	86.1	84.7	84.9	86.2	85.0	83.1	84.4	88	79
1954	82.8	83.0	83.2	84.8	85.4	86.4	86.4	85.7	84.9	85.6	83.9	82.0	84.5	88	81
1955	81.1	81.2	83.1	85.5	86.8	86.7	85.9	86.9	86.8	85.6	84.7	81.5	84.6	89	80
Mean	81.1	81.6	82.6	84.9	86.0	86.2	85.7	85.1	85.1	85.1	83.8	82.1	84.1		
Max.	84	84	86	88	88	89	88	89	87	88	86	86		89	
Mean Max.	82.8	83.1	84.2	86.6	87.5	88.2	87.3	87.1	86.5	87.0	85.2	83.8			
Mean Min.	79.1	80.0	81.2	83.3	84.0	84.3	83.8	83.3	83.0	82.8	81.9	80.4			
Min.	72	79	80	82	82	83	82	82	82	80	79	79			79
							DAVAO, MINDANAO ISLAND, PHILIPPINE ISLANDS								
1947	— -	— -	— -	— -	84.5	84.7	84.0	84.7	84.8	83.6	82.4	81.4	— -	88	80*
1948	80.7	80.5	80.9	83.0	85.1	84.7	84.3	84.5	84.2	83.3	83.6	82.0	83.1	90	77
1949	81.2	80.6	80.5	82.9	84.0	85.6	84.7	84.8	84.7	86.2	85.3	83.8	83.7	91	76

1950	83.7	83.3	83.1	83.9	85.3	85.2	85.4	85.2	85.0	85.5	84.3	83.2	84.4	90	78
1951	82.9	83.6	82.6	83.2	83.4	82.2	83.3	82.5	81.4	83.0	82.9	82.0	82.8	90	78
1952	80.4	80.2	80.5	81.6	84.0	-- -	83.5	83.1	83.0	83.1	82.7	82.9	— -	88*	80*
1953	81.5	-- -	81.9	84.8	86.6	84.4	84.9	84.5	85.5	85.5	85.0	83.9	— -	90	79*
1954	84.3	84.7	84.6	85.8	86.0	85.5	84.8	86.0	— -	-- -	85.3	84.0	— -	89*	79
1955	82.6	82.8	84.2	86.0	85.3	84.6	86.0	86.4	86.4	85.8	85.8	84.2	85.0	90	79
Mean	82.2	82.2	82.3	83.9	84.9	84.6	84.5	84.6	84.4	84.5	84.1	83.0	83.8		
Max.	87	87	88	90	90	90	90	90	90	91	90	87		91	
Mean Max.	84.6	83.7	85.4	87.6	88.6	88.1	87.9	88.2	87.1	87.2	86.7	85.0			
Mean Min.	79.8	79.9	79.6	81.0	82.0	81.2	81.9	81.9	82.1	82.0	81.6	79.9			
Min.	78	78	77	80	78	78	80	79	80	80	79	76			76

JOLO, JOLO ISLAND, PHILIPPINE ISLANDS

1947	— -	— -	— -	— -	-- -	— -	— -	— -	-- -	82.5	82.6	81.5	— -	--	--
1948	80.0	79.1	78.9	80.6	82.2	82.0	80.9	81.9	81.0	81.0	82.0	81.0	80.9	86	78
1949	80.2	79.6	79.2	79.9	81.2	81.8	81.8	81.0	81.8	83.7	82.6	82.0	81.2	87	76
1950	80.9	81.6	80.5	81.4	83.4	82.9	82.4	81.4	81.4	82.5	82.4	81.7	81.9	87	78
1951	80.8	81.4	80.6	81.8	82.3	82.0	81.7	81.3	81.1	81.4	82.2	82.4	81.6	88	78
1952	— -	— -	— -	— -	84.9	84.1	83.7	83.9	83.9	82.4	82.4	82.4	— -	89	79*
1953	81.5	80.6	82.4	83.3	82.7	83.0	82.9	83.5	83.6	83.8	83.3	83.6	82.8	87	78
1954	82.6	82.2	82.9	83.4	84.1	83.3	82.7	83.2	82.6	83.0	83.8	82.4	83.0	89	78
1955	82.0	80.9	81.2	80.3	82.8	81.7	82.6	82.9	81.6	82.5	— -	— -	— -	84*	76
Mean	81.1	80.8	80.8	81.5	83.0	82.6	82.3	82.4	82.1	82.5	82.7	82.1	82.0		
Max.	86	86	85	87	89	89	89	88	88	87	88	86		89	
Mean Max.	83.6	83.4	83.2	84.4	86.5	85.4	85.4	85.6	85.0	85.1	85.5	84.3			
Mean Min.	79.1	78.6	78.1	79.3	80.3	80.2	80.0	79.8	80.5	80.2	80.6	80.2			
Min.	78	78	76	76	79	78	78	79	80	79	79	79			76

* Data are incomplete for the part of year in which this extreme occurs. This value is from the months shown.

Table 1.—Surface Water Temperatures—*Continued*

Means and Extremes in °F.

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Means	Max.	Min.
PUNTA ARENAS, MAGELLAN STRAIT, CHILE															
1944	— -	— -	— -	— -	43.9	40.3	39.7	38.7	41.2	45.3	44.4	46.2	— -	—	36
1945	49.8	48.7	44.1	43.0	42.6	— -	— -	— -	— -	— -	— -	— -	— -	55	—
1946	— -	— -	— -	— -	— -	— -	42.1	40.5	41.9	42.8	41.0	45.5	— -	—	39*
1947	48.0	48.4	48.6	47.5	— -	41.7	41.2	41.4	41.9	43.2	45.5	46.4	— -	55	40
1948	48.7	48.6	45.9	45.5	43.0	41.2	42.1	42.3	41.9	42.8	44.8	45.9	44.4	55	36
1949	46.6	47.7	46.6	45.3	43.3	41.5	41.7	40.8	41.5	42.3	— -	— -	— -	50	36
1950	— -	— -	— -	43.9	40.6	41.0	36.3	39.0	40.3	43.5	44.2	43.3	— -	—	30
1951	44.1	47.3	48.2	45.3	43.3	41.5	41.5	42.4	42.4	43.9	44.8	45.0	44.1	50	37
1952	46.2	46.4	46.4	45.5	42.8	42.1	42.6	41.9	42.4	44.2	45.0	46.4	44.3	49	40
1953	48.6	48.6	48.4	46.8	45.0	43.7	41.3	41.8	42.3	43.2	44.8	46.9	45.1	52	36
1954	47.7	47.5	46.8	44.8	43.7	41.5	41.2	40.6	41.9	43.3	44.6	44.6	44.0	50	39
1955	46.8	46.4	46.5	44.9	42.8	40.5	40.5	40.1	40.5	42.4	44.1	44.2	43.3	49	38
Mean	47.4	47.7	46.8	45.2	43.1	41.5	40.9	40.9	41.7	43.4	44.3	45.4	44.0		
Max.	55	55	50	50	47	46	45	46	46	48	49	52		55	
Mean Max.	51.3	50.9	48.8	47.4	45.2	43.6	43.0	43.3	44.5	45.1	46.3	47.4			
Mean Min.	45.0	44.8	44.6	42.5	40.4	39.2	38.5	38.3	39.6	40.9	41.7	43.5			
Min.	42	43	41	41	37	36	30	36	36	36	37	41			30
PUERTO MONTT, CHILE															
1944	— -	— -	— -	— -	52.0	50.4	49.6	49.6	50.9	51.6	56.5	— -	— -	—	45
1945	— -	62.4	58.8	54.0	51.8	50.2	50.0	51.1	52.7	— -	57.0	59.5	— -	66*	45
1946	61.7	57.6	58.1	55.0	52.2	50.4	50.7	51.3	53.6	54.0	54.0	59.2	54.8	65	47
1947	59.2	60.3	59.5	55.8	52.5	51.3	— -	50.0	51.1	54.1	59.2	59.2	— -	67	44*
1948	63.1	61.0	58.1	54.3	52.3	50.5	50.9	50.5	52.7	52.9	56.5	58.6	55.1	68	44
1949	62.8	59.2	— -	53.4	51.8	— -	49.6	49.6	50.7	— -	57.9	— -	— -	67*	48*

1950	63.7	-- -	56.3	52.0	51.3	50.7	50.7	50.0	50.5	53.1	54.7	56.7	-- -	68*	46
1951	59.9	59.0	55.8	54.9	51.1	49.8	49.6	50.0	50.0	52.9	53.6	61.5	54.0	70	46
1952	64.8	63.0	55.6	54.7	51.4	48.7	50.0	50.0	51.3	54.0	57.0	62.4	55.2	67	42
1953	58.8	62.0	56.5	54.9	52.4	50.4	50.3	50.9	51.4	-- -	-- -	61.2	-- -	70	46
1954	60.4	60.6	59.2	53.1	-- -	-- -	-- -	-- -	-- -	-- -	-- -	-- -	-- -	65*	--
1955	58.0	56.8	57.4	52.4	-- -	49.4	47.8	-- -	-- -	-- -	-- -	54.6	-- -	62*	45*
Mean	61.2	60.2	57.5	54.0	51.9	50.2	49.9	50.3	51.5	53.2	56.3	59.2	54.6		
Max.	70	70	67	59	57	60	54	54	58	59	66	67		70	
Mean Max.	66.0	64.5	62.1	56.7	54.3	53.0	52.7	52.6	54.7	57.9	61.8	64.0			
Mean Min.	55.8	55.0	53.2	51.1	49.7	46.1	46.4	47.2	48.9	50.2	52.0	54.3			
Min.	51	52	52	48	46	42	44	45	46	49	51	52			42
TALCAHUANO, CHILE															
1945	-- -	53.8	54.9	55.2	57.2	56.5	55.9	55.4	53.6	55.9	57.6	55.9	-- -	60*	48
1946	55.9	55.8	54.9	55.0	55.6	55.2	51.1	50.5	50.7	-- -	52.5	54.0	-- -	60	49*
1947	51.6	52.7	51.3	50.2	51.1	49.6	50.2	50.5	51.4	50.9	51.4	52.2	51.1	54	48
1948	52.7	53.2	52.2	52.7	54.7	53.4	51.8	51.1	53.8	53.1	54.7	54.5	53.2	56	45
1949	54.5	54.9	52.7	51.3	50.7	50.2	50.0	51.8	51.8	54.1	55.9	56.3	52.8	60	48
1950	57.7	57.9	58.1	55.2	54.1	53.2	50.4	48.6	-- -	-- -	55.4	55.6	-- -	64	45*
1951	57.4	58.5	55.4	55.2	55.8	53.2	53.6	54.3	54.0	55.0	56.8	59.7	55.7	68	46
1952	58.3	59.5	57.6	56.1	54.3	50.7	-- -	-- -	53.8	55.4	56.7	59.0	-- -	64	42*
1953	59.2	59.9	57.9	55.3	55.8	53.2	52.2	52.3	53.2	53.6	-- -	-- -	-- -	64*	48
1954	57.7	56.7	-- -	-- -	-- -	52.9	50.4	50.7	-- -	52.5	54.7	56.7	-- -	62*	46*
1955	57.7	56.8	56.1	54.0	53.4	51.4	50.0	50.4	52.2	54.1	55.1	55.7	53.9	62	46
Mean	56.3	56.3	55.1	54.0	54.3	52.7	51.6	51.6	52.7	53.8	55.1	56.0	54.1		
Max.	64	64	64	60	59	58	57	59	57	60	62	68		68	
Mean Max.	59.5	59.1	58.6	56.8	56.4	55.0	54.3	54.2	55.0	56.5	57.9	60.4			
Mean Min.	52.6	53.8	52.3	52.2	50.9	48.5	48.5	48.1	49.8	51.0	51.7	52.6			
Min.	49	50	49	49	47	42	45	45	48	48	48	50			42

* Data are incomplete for the part of year in which this extreme occurs. This value is from the months shown.

Table 1.—Surface Water Temperatures—*Continued*

Means and Extremes in °F.

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Means	Max.	Min.
							VALPARAISO, CHILE								
1944	— -	— -	— -	59.5	55.4	56.1	55.8	55.6	54.7	55.8	57.7	60.1	— -	64*	53
1945	62.0	62.8	60.8	57.6	55.6	53.4	52.9	53.8	56.7	56.7	57.7	58.5	57.4	68	50
1946	60.6	59.7	58.3	58.3	57.0	54.4	55.9	54.5	55.0	55.4	56.7	60.3	57.2	64	52
1947	59.2	58.6	58.5	57.0	54.5	53.6	52.3	53.1	53.4	54.3	55.9	56.7	55.6	64	51
1948	57.9	57.7	58.3	56.3	56.1	54.3	53.6	53.2	55.0	56.3	56.3	60.8	56.3	64	51
1949	60.4	62.2	57.7	56.8	56.7	54.0	53.6	52.7	53.4	55.6	56.3	59.4	56.6	64	47
1950	61.5	59.2	59.4	57.4	56.1	55.9	55.8	53.6	55.6	55.2	57.9	58.3	57.2	65	52
1951	59.5	59.2	57.7	56.5	56.7	55.4	57.0	56.5	55.0	55.8	56.3	58.8	57.0	64	52
1952	62.8	63.9	58.3	57.7	56.8	54.9	54.3	53.8	55.8	56.8	57.7	60.2	57.8	67	53
1953	59.7	59.5	57.3	57.0	57.6	55.2	53.0	54.5	55.4	53.8	58.9	59.6	56.8	65	52
1954	58.3	61.0	62.2	57.4	54.1	54.7	53.8	54.3	53.8	54.7	57.6	58.8	56.7	64	52
1955	61.9	57.7	53.9	55.7	54.4	54.5	52.4	52.9	53.7	55.1	57.5	58.1	55.6	66	50
Mean	60.3	60.1	58.4	57.3	55.9	54.7	54.2	54.0	54.8	55.5	57.2	59.1	56.8		
Max.	67	68	64	63	61	58	59	59	62	61	64	64		68	
Mean Max.	64.2	62.8	61.1	60.1	57.9	56.6	55.8	55.9	57.5	58.1	61.1	62.9			
Mean Min.	56.4	56.5	55.3	54.7	54.0	52.8	52.0	52.4	52.9	53.1	54.1	55.0			
Min.	53	54	50	52	52	50	47	52	52	52	52	54			47
							CALDERA, CHILE								
1951	64.8	63.3	62.6	61.2	60.6	58.3	58.8	58.3	59.0	60.1	61.7	61.3	60.8	71	55
1952	66.2	64.9	62.8	61.0	61.3	55.6	56.7	57.2	57.2	57.4	56.9	57.4	59.6	72	54
1953	59.0	59.2	63.4	63.0	62.7	62.9	63.5	57.4	57.9	57.6	— -	— -	— -	65	57*
1954	63.0	66.2	62.8	57.9	58.3	57.6	57.0	57.9	58.1	59.7	62.4	64.9	60.5	69	54
1955	66.1	66.1	62.6	60.9	57.8	57.0	57.0	57.6	58.7	61.6	61.6	63.7	60.9	72	54

Mean	63.8	63.9	62.8	60.8	60.1	58.3	58.6	57.7	58.2	59.3	60.6	61.8	60.5		
Max.	72	72	70	65	65	64	65	60	64	65	66	69		72	
Mean Max.	68.0	67.6	67.0	63.8	63.2	60.2	60.4	59.6	61.2	61.6	63.8	65.8			
Mean Min.	60.2	61.2	58.8	58.4	57.8	56.6	56.6	55.6	55.8	56.4	58.2	58.5			
Min.	58	58	55	54	55	54	54	54	54	55	56	57			54
ANTOFAGASTA, CHILE															
1946	69.4	68.2	66.7	63.1	60.4	58.8	59.2	59.4	60.3	61.2	63.7	-- -	-- -	71*	57
1947	69.4	67.8	67.1	65.3	61.7	60.1	59.0	58.8	59.9	61.0	64.4	67.1	63.5	72	57
1948	69.3	68.9	66.4	62.4	60.8	-- -	57.7	58.5	59.9	61.5	64.4	68.9	-- -	81	57*
1949	69.6	69.8	65.3	63.9	61.3	59.9	57.4	58.1	58.5	61.5	64.0	66.4	63.0	73	56
1950	68.2	67.1	65.1	61.5	60.6	57.9	58.1	57.7	61.2	61.7	63.7	66.0	62.4	71	56
1951	69.6	68.0	64.8	63.3	62.6	62.8	61.9	61.7	61.3	63.5	65.5	66.0	64.2	72	59
1952	71.1	70.7	68.0	63.0	62.2	58.3	58.1	59.9	62.2	-- -	-- -	68.5	-- -	74	56*
1953	69.6	70.5	67.7	65.0	61.9	61.2	59.2	59.7	62.2	61.7	63.1	66.8	64.0	72	59
1954	69.8	69.3	68.2	62.2	60.1	58.5	57.7	58.8	59.9	61.2	63.3	66.6	63.0	72	57
1955	69.1	68.6	66.0	62.8	60.2	58.3	57.4	58.5	59.6	61.8	64.0	66.0	62.7	73	56
Mean	69.5	68.9	66.5	63.2	61.2	59.5	58.6	59.1	60.5	61.7	64.0	66.9	63.3		
Max.	77	74	72	68	65	64	63	64	64	66	68	72		77	
Mean Max.	72.5	72.0	69.3	65.6	63.0	61.3	59.4	60.7	62.5	63.7	66.8	70.9			
Mean Min.	66.6	66.2	63.4	61.0	59.5	57.9	57.6	57.8	58.9	59.0	61.8	64.1			
Min.	64	64	62	59	58	56	56	56	57	58	60	63			56
ARICA, CHILE															
1951	66.7	65.7	64.9	63.7	64.4	64.0	64.0	63.7	63.1	64.4	64.6	64.5	64.5	70	61
1952	66.6	68.9	68.4	64.6	62.4	60.4	58.8	60.6	61.3	61.7	62.8	65.1	63.5	72	57
1953	66.7	66.7	66.7	65.2	65.1	63.4	61.6	62.4	63.6	61.9	62.4	-- -	-- -	71	59
1954	65.7	66.4	66.0	65.1	63.5	60.6	59.0	59.4	60.4	61.7	62.8	63.9	62.9	68	58
1955	66.9	68.6	68.4	65.1	62.0	59.7	58.0	58.6	58.7	60.1	60.6	62.9	62.5	69	57

* Data are incomplete for the part of year in which this extreme occurs. This value is from the months shown.

Table 1.—Surface Water Temperatures—*Continued*

Means and Extremes in °F.

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Means	Max.	Min.
							ARICA, CHILE -Continued								
Mean	66.5	67.3	66.9	64.7	63.5	61.6	60.3	60.9	61.4	62.0	62.6	64.1	63.5		
Max.	71	72	71	68	67	66	65	65	66	66	68	67		72	
Mean Max.	68.8	69.6	69.0	66.6	65.8	63.6	61.8	62.4	63.4	64.2	64.8	66.2			
Mean Min.	63.4	64.4	63.6	62.8	61.4	60.0	59.0	59.6	59.8	59.8	60.2	62.2			
Min.	61	61	62	61	60	59	57	57	57	58	57	61			57
							MATARANI, PERU								
1944	-- -	-- -	59.5	59.7	59.4	59.5	59.9	61.0	60.3	59.0	60.3	-- -	-- -	64*	57
1945	60.8	-- -	-- -	63.1	61.7	62.2	59.3	59.0	59.7	59.9	60.3	60.8	-- -	66*	56
1946	61.1	61.0	62.8	61.2	60.1	59.0	59.2	59.0	59.0	59.0	59.0	59.5	60.0	66	57
1947	62.8	60.6	62.1	61.3	59.5	58.6	57.4	56.1	55.8	57.0	59.7	59.9	59.2	66	53
1948	60.4	62.8	62.8	61.7	63.1	59.0	57.6	57.2	57.9	58.3	59.0	61.5	60.1	66	55
1949	65.8	-- -	-- -	-- -	-- -	-- -	-- -	-- -	-- -	57.3	59.8	60.0	-- -	68*	56*
1950	61.9	60.1	59.4	60.3	58.9	57.3	57.3	57.0	58.1	57.7	58.5	63.7	59.2	67	56
1951	64.4	-- -	61.0	-- -	60.8	64.0	64.4	64.4	-- -	64.4	64.4	64.4	-- -	67*	61*
--															
1954	-- -	-- -	-- -	61.2	59.3	58.8	57.2	56.8	56.7	56.7	57.5	60.9	-- -	66*	56
1955	-- -	-- -	-- -	-- -	59.9	58.8	58.1	57.6	57.4	59.1	59.5	61.0	-- -	67*	56
Mean	62.5	61.1	61.3	61.2	60.3	59.7	58.9	58.7	58.1	58.8	59.8	61.3	60.1		
Max.	68	66	66	65	66	66	64	64	63	67	64	67		68	
Mean Max.	65.4	63.4	63.7	63.9	61.9	61.2	60.7	60.3	59.8	61.4	61.9	64.2			
Mean Min.	60.5	59.2	59.8	59.2	59.1	58.1	57.4	57.2	56.5	57.5	58.4	58.8			
Min.	59	58	58	58	57	57	54	54	54	53	56	56			53

	CALLAO (Naval Arsenal), PERU														
1944	-- -	71.1	69.3	67.8	65.7	64.2	-- -	64.9	63.5	63.5	65.8	66.6	-- -	75*	62*
1945	69.8	68.4	68.7	66.7	64.9	62.1	63.0	63.3	64.5	65.3	65.5	66.6	65.7	74	60
1946	67.6	71.4	70.7	70.0	65.5	-- -	63.7	62.8	64.0	64.6	66.4	70.7	-- -	75	61*
1947	-- -	71.4	68.5	68.4	67.5	63.1	-- -	62.6	63.0	62.6	64.8	66.7	-- -	75*	60*
1948	71.6	70.3	75.2	71.8	67.1	64.9	65.1	61.0	61.3	64.8	66.6	67.6	67.3	79	59
1949	70.7	74.1	74.3	69.4	64.9	62.8	61.2	60.4	61.3	62.8	65.1	66.0	66.1	81	59
1950	67.6	68.7	67.3	64.9	61.3	59.2	60.1	59.7	61.3	63.0	63.0	64.2	63.4	72	58
1951	65.7	66.0	66.7	66.7	66.9	66.6	66.0	65.3	63.9	65.7	66.6	66.6	66.1	72	62
1952	67.1	68.0	68.7	-- -	-- -	-- -	60.8	60.3	60.6	62.2	62.4	64.2	-- -	72*	59
1953	64.8	68.5	72.1	70.7	66.2	64.4	64.4	65.3	65.1	64.1	64.9	66.6	66.4	76	62
Mean	68.1	69.8	70.2	68.5	65.6	63.4	63.0	62.6	62.8	63.9	65.1	66.6	65.8		
Max.	78	81	79	75	72	68	69	68	68	72	71	72		81	
Mean Max.	72.8	73.6	74.0	72.4	69.1	65.8	65.7	64.5	66.0	67.7	68.1	70.0			
Mean Min.	64.6	65.2	66.9	64.4	62.9	61.7	61.3	61.0	60.7	61.2	62.3	63.5			
Min.	63	62	63	59	60	58	59	59	59	59	59	60			58
	CALLAO (La Punta), PERU														
1954	-- -	61.4	61.6	61.2	59.9	59.4	58.4	58.1	58.0	57.6	57.3	59.4	-- -	66	56
1955	60.6	61.7	62.8	62.0	61.8	60.6	60.0	59.0	58.0	57.5	58.5	59.2	60.1	66	56
	CHIMBOTE, PERU														
1954	-- -	-- -	-- -	-- -	-- -	-- -	-- -	-- -	-- -	-- -	65.2	65.7	-- -	--	--
1955	68.3	70.0	71.2	68.2	64.8	63.9	63.0	62.3	62.4	62.4	63.8	64.6	65.4	75	60

* Data are incomplete for the part of year in which this extreme occurs. This value is from the months shown.

Table 1.—Surface Water Temperatures—*Continued*

Means and Extremes in °F.

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Means	Max.	Min.
							TALARA, PERU								
1944	72.3	-- -	74.1	69.8	68.7	66.7	66.9	64.9	65.8	63.9	63.0	63.0	-- -	81*	59
1945	75.2	77.2	73.2	69.1	66.9	69.8	68.4	66.7	66.2	67.0	66.7	64.2	69.2	82	61
1946	71.1	78.8	74.3	67.9	66.4	65.7	66.6	64.8	62.8	64.2	-- -	69.5	-- -	83	60*
1947	71.1	72.0	70.8	69.4	67.4	67.9	-- -	66.3	66.4	64.5	65.2	66.9	-- -	78	62
1948	73.7	74.6	74.0	73.1	67.6	66.9	64.5	62.1	62.5	64.0	61.8	64.2	67.4	80	59
1949	71.1	74.5	73.9	68.8	65.9	64.6	63.2	62.6	61.0	60.8	61.5	65.1	66.1	78	57
1950	66.2	70.8	71.1	62.4	65.4	63.7	63.2	62.3	63.6	64.3	63.9	64.5	65.1	78	58
1951	73.7	69.1	69.7	71.4	70.6	-- -	68.9	65.9	66.0	67.7	67.2	64.3	-- -	78	61
1952	67.6	70.5	69.0	65.2	63.0	63.1	61.7	61.7	-- -	-- -	65.5	65.9	-- -	79	60*
1953	69.4	73.4	76.6	74.5	67.5	67.4	65.9	63.8	66.2	62.9	66.6	-- -	-- -	84	59*
1954	67.1	69.1	68.7	63.0	61.2	62.8	61.6	61.4	62.0	62.0	64.2	64.8	64.0	76	60
1955	73.1	73.2	72.4	69.7	65.5	67.5	64.4	64.0	63.2	63.4	64.9	64.3	67.1	80	60
Mean	71.0	73.0	72.3	68.7	66.3	66.0	65.0	63.9	64.2	64.1	64.6	65.2	67.0		
Max.	82	83	84	80	73	77	75	72	73	76	74	75		84	
Mean Max.	76.6	78.2	77.9	73.0	69.7	70.4	68.5	67.7	68.9	70.2	69.4	70.4			
Mean Min.	65.0	67.6	66.8	65.8	63.4	63.1	62.5	61.6	60.9	60.6	60.4	60.9			
Min.	58	62	63	60	60	61	60	60	58	58	57	58			57
							LA LIBERTAD, ECUADOR								
1949	77.4	78.7	80.8	-- -	-- -	76.4	-- -	-- -	74.3	73.0	73.1	75.6	-- -	84*	71*
1950	78.2	81.6	81.8	74.5	74.7	74.1	72.2	71.5	73.4	71.9	74.5	77.0	75.4	86	66
1951	79.8	79.1	79.5	77.2	76.0	78.4	77.7	75.6	75.1	74.9	76.1	77.0	77.2	84	72
1952	77.5	80.3	81.1	78.1	77.9	76.7	73.3	73.0	73.4	73.7	75.4	76.2	76.4	84	70
1953	80.4	80.4	83.8	82.8	80.7	77.9	74.2	73.2	74.9	75.1	76.2	75.5	77.9	88	72

Mean	78.7	80.0	81.4	78.2	77.3	76.7	74.4	73.3	74.2	73.7	75.1	76.3	76.6		
Max.	88	84	87	85	84	83	80	78	78	77	79	80		88	
Mean Max.	82.4	83.2	84.6	81.5	80.8	80.2	78.0	75.5	76.6	76.0	77.4	79.0			
Mean Min.	76.6	76.6	77.8	74.2	72.8	73.6	71.5	70.5	71.8	71.0	72.8	72.6			
Min.	75	75	76	70	68	72	68	66	68	68	70	72			66
TUMACO, COLOMBIA															
1951	-- -	-- -	-- -	-- -	-- -	-- -	-- -	-- -	-- -	82.1	81.9	82.0	-- -	--	--
1952	80.7	80.3	81.2	82.1	82.0	81.2	80.8	80.9	80.6	81.2	80.5	80.0	81.0	85	78
1953	80.8	81.0	79.2	82.3	82.9	81.9	81.3	81.2	81.3	80.7	80.7	80.1	81.1	86	72
1954	80.0	78.7	80.6	80.8	80.3	80.1	79.8	79.7	79.7	79.4	79.4	78.6	79.8	83	74
1955	79.5	79.9	78.3	80.0	80.4	80.1	79.9	79.9	79.6	78.9	78.5	78.6	79.5	83	74
Mean	80.2	80.0	79.8	81.3	81.4	80.8	80.4	80.4	80.3	80.5	80.2	79.9	80.4		
Max.	82	83	84	84	86	83	82	82	84	84	83	83		86	
Mean Max.	81.5	82.0	82.8	83.2	83.5	82.2	81.2	81.5	81.8	82.0	81.6	81.2			
Mean Min.	78.5	76.5	75.8	79.0	80.5	79.2	79.2	79.5	79.2	79.2	79.2	78.8			
Min.	76	74	72	78	80	78	78	79	78	78	78	77			72
BUENAVENTURA, COLOMBIA															
1953	82.5	-- -	-- -	-- -	82.7	83.5	83.7	83.7	83.5	82.8	82.2	82.2	-- -	86*	80*
1954	82.6	82.6	83.6	82.9	81.7	82.0	82.3	82.5	82.3	81.9	81.5	81.2	82.3	86	80
1955	82.3	83.6	81.0	82.5	82.1	81.8	81.9	81.9	82.0	80.1	80.4	80.3	81.7	84	78
Mean	82.5	83.1	82.3	82.7	82.2	82.4	82.6	82.7	82.6	81.6	81.4	81.2	82.3		
Max.	86	84	85	84	84	85	85	86	86	86	84	84		86	
Mean Max.	84.7	84.0	84.0	84.0	83.7	83.7	84.3	84.3	84.7	84.0	83.3	82.7			
Mean Min.	80.7	81.5	80.0	80.5	80.3	80.7	81.0	80.7	81.0	79.3	79.3	80.0			
Min.	80	81	78	80	80	80	80	80	80	78	78	79			78

* Data are incomplete for the part of year in which this extreme occurs. This value is from the months shown

Table 1.—Surface Water Temperatures—*Continued*

Means and Extremes in °F.

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Means	Max.	Min.
NAOS ISLAND, CANAL ZONE															
1949	-- -	-- -	-- -	-- -	81.4	82.9	83.1	82.8	83.3	82.1	81.4	79.8	-- -	86	--
1950	79.5	76.9	75.6	73.7	82.0	82.5	82.1	82.2	83.5	82.1	80.3	79.3	80.0	86	68
1951	77.9	76.9	74.7	78.9	82.4	83.6	83.9	83.6	83.8	82.9	82.6	82.0	81.1	86	70
1952	78.6	73.2	75.4	77.8	83.1	84.0	82.8	82.8	84.1	83.0	82.6	81.4	80.7	88	68
1953	80.1	78.3	72.8	79.1	83.9	84.2	83.7	84.5	84.4	83.3	82.7	82.9	81.7	87	70
1954	81.8	73.0	77.2	78.5	83.4	83.5	82.6	81.8	84.0	82.0	81.9	80.9	80.9	86	68
1955	79.9	79.9	73.5	77.9	81.8	83.1	82.7	82.2	83.3	82.2	81.3	80.8	80.7	86	70
Mean	79.6	76.4	74.9	77.6	82.6	83.4	83.0	82.8	83.8	82.5	81.8	81.0	80.8		
Max.	86	84	80	84	86	87	86	86	88	86	85	85		88	
Mean Max.	83.0	80.7	78.2	82.2	84.9	85.7	85.0	84.4	85.7	84.7	84.0	82.9			
Mean Min.	75.3	71.0	70.8	71.5	79.6	81.7	81.4	81.1	82.0	80.4	80.3	79.1			
Min.	70	68	68	70	75	80	80	80	81	80	78	76			68
PUERTO ARMUELLES, PANAMA															
1951	-- -	83.2	83.9	83.3	83.5	84.0	84.2	84.2	82.8	83.9	83.1	84.1	-- -	86*	81*
1952	84.3	84.0	83.8	83.8	82.8	82.4	82.7	82.8	83.2	82.8	82.2	82.5	83.1	86	80
1953	83.0	83.2	83.7	84.0	82.5	83.9	84.0	83.9	83.5	82.1	83.2	83.1	83.3	86	79
1954	84.6	84.5	83.2	84.5	82.3	81.0	81.7	83.5	83.5	81.3	82.9	82.7	83.0	86	78
1955	-- -	-- -	-- -	-- -	81.8	-- -	-- -	82.5	81.8	80.3	80.0	80.6	-- -	86*	74*
Mean	84.0	83.7	83.6	83.9	82.6	82.8	83.2	83.4	83.0	82.1	82.3	82.6	83.1		
Max.	86	86	86	86	86	86	86	86	86	85	86	86		86	
Mean Max.	85.0	84.8	85.2	86.0	84.8	85.0	84.8	85.8	85.2	84.4	84.6	84.6			
Mean Min.	82.3	82.2	81.8	81.5	79.0	80.2	81.5	81.0	80.2	80.0	80.2	81.0			
Min.	82	82	80	80	74	78	78	79	77	78	77	78			77

PUNTARENAS, COSTA RICA

1948	79.9	80.1	80.2	79.9	80.2	80.2	81.0	81.7	81.3	80.8	81.0	80.6	80.6	82	79
1949	80.6	80.8	80.8	81.5	81.7	82.8	82.2	83.7	82.0	80.6	79.7	80.2	81.4	88	79
1950	80.6	81.1	80.2	81.3	85.3	85.3	83.8	83.7	82.4	84.4	81.5	80.4	82.5	89	79
1951	81.5	81.3	82.4	83.1	85.3	83.7	84.6	85.5	83.1	82.9	83.1	83.5	83.3	88	79
1952	83.3	83.1	82.6	83.1	84.0	83.8	83.7	84.2	83.8	83.5	82.6	82.9	83.4	86	81
1953	83.1	83.1	83.3	85.6	85.3	83.5	83.3	84.4	84.7	83.7	83.5	83.7	83.9	88	78
1954	83.7	83.7	83.7	84.2	83.5	83.8	83.5	83.7	84.2	83.5	83.8	83.8	83.8	88	81
1955	83.7	83.7	83.8	83.8	83.8	83.1	83.7	83.8	82.0	83.1	83.5	82.8	83.4	87	79
Mean	82.0	82.1	82.1	82.8	83.6	83.3	83.2	83.8	82.9	82.8	82.3	82.2	82.8		
Max.	87	87	87	88	89	88	88	88	87	87	87	87		89	
Mean Max.	83.6	83.9	83.8	85.5	85.6	85.5	85.6	85.9	85.2	85.0	84.4	84.4			
Mean Min.	80.8	81.1	80.9	81.2	81.4	81.4	81.2	81.8	81.4	80.5	80.8	80.8			
Min.	79	79	79	79	79	79	79	81	79	78	79	79			78

SAN JUAN DEL SUR, NICARAGUA

1950	73.8	66.9	67.0	71.5	76.6	80.8	76.9	80.1	84.8	81.6	80.7	75.8	76.4	89	60
1951	76.2	67.5	70.0	78.7	-- -	84.5	85.3	86.5	89.4	89.0	86.3	84.8	-- -	98	63
1952	77.6	74.5	78.1	79.8	85.4	84.3	82.4	84.7	89.5	86.6	79.0	75.1	81.4	97	67
1953	75.7	76.2	74.4	77.8	79.8	83.7	82.4	83.7	85.9	-- -	-- -	-- -	-- -	90*	65
Mean	75.8	71.3	72.4	77.0	80.6	83.3	81.8	83.8	87.4	85.7	82.0	78.6	80.0		
Max.	84	83	86	89	90	90	89	94	96	98	97	92		98	
Mean Max.	81.2	80.2	81.2	85.2	86.7	87.8	86.8	91.2	92.8	94.7	90.3	88.7			
Mean Min.	67.2	64.8	66.8	70.0	70.0	76.8	75.8	76.2	78.8	74.3	72.7	70.0			
Min.	65	60	63	67	65	72	72	75	77	71	72	68			60

* Data are incomplete for the part of year in which this extreme occurs. This value is from the months shown.

Table 1.—Surface Water Temperatures—*Continued*

Means and Extremes in °F.

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Means	Max.	Min.
LA UNIÓN, EL SALVADOR															
1949	— -	— -	— -	— -	— -	— -	— -	— -	85.8	82.6	78.0	79.9	— -	88*	74*
1950	80.2	79.3	81.7	— -	85.9	85.0	85.5	85.9	84.7	82.7	79.1	76.8	— -	88	73
1951	— -	— -	82.2	85.7	86.4	86.6	86.1	87.9	87.0	85.8	84.5	83.7	— -	92	78*
1952	81.1	81.8	83.9	85.7	87.5	84.7	86.0	86.6	86.2	84.7	83.7	81.5	84.4	90	76
1953	80.7	82.6	— -	86.0	87.0	86.9	87.1	87.7	86.6	84.8	83.0	82.0	— -	90	78*
1954	82.1	80.9	84.1	86.1	86.2	86.1	86.3	87.3	86.5	81.8	81.9	80.0	84.1	90	74
1955	81.3	— -	83.8	85.9	86.8	87.8	86.6	87.1	83.9	83.5	83.1	82.1	— -	90	77*
Mean	81.1	81.2	83.1	85.9	86.6	86.2	86.3	87.1	85.8	83.7	81.9	80.9	84.2		
Max.	88	88	87	88	90	89	90	92	90	88	88	88		92	
Mean Max.	84.6	85.0	86.2	87.8	88.7	88.2	88.3	89.3	88.4	86.4	85.1	84.3			
Mean Min.	78.4	77.8	80.2	83.0	84.0	82.8	84.0	85.3	83.4	80.0	77.6	76.3			
Min.	76	76	79	80	83	76	82	82	82	76	74	73			73
SAN JOSÉ, GUATEMALA															
1949	— -	— -	— -	— -	— -	— -	— -	— -	— -	81.9	83.6	83.2	— -	—	79*
1950	83.1	82.4	83.0	85.2	85.3	86.2	86.4	86.3	86.9	82.6	82.8	81.8	84.3	90	76
1951	82.6	81.4	82.9	82.5	85.7	86.8	86.2	86.5	86.8	87.4	86.7	85.5	85.1	89	76
1952	83.6	83.6	83.4	86.2	86.5	82.7	86.3	85.4	86.1	85.8	84.4	82.9	84.7	88	72
1953	82.1	82.7	85.2	84.6	85.5	86.5	86.9	86.8	87.2	84.3	85.4	84.5	85.1	89	80
1954	82.8	83.4	82.4	86.0	85.1	85.7	86.0	87.0	86.3	81.5	82.8	82.8	84.3	89	80
1955	81.5	81.9	83.8	84.2	85.5	85.9	85.0	83.6	82.8	83.0	82.2	83.4	83.6	88	78

Mean	82.6	82.6	83.4	84.8	85.6	85.6	86.1	85.9	86.0	83.8	84.0	83.4	84.5		
Max.	85	86	86	88	88	88	89	89	90	89	88	86		90	
Mean Max.	84.0	84.5	84.8	86.7	87.3	88.0	88.2	87.7	88.3	86.1	85.6	85.1			
Mean Min.	81.0	80.3	81.5	81.7	83.7	82.2	83.8	83.3	83.8	80.6	82.0	81.9			
Min.	79	79	80	76	83	72	82	80	80	76	78	80			72
SALINA CRUZ, MEXICO															
1952	--	--	--	77.5	81.2	82.4	81.4	83.6	83.7	75.4	77.0	72.9	--	87	66*
1953	72.1	75.4	--	--	--	--	84.6	83.8	83.5	79.0	73.7	75.2	--	87*	63
1954	74.5	73.9	74.5	78.3	83.0	84.5	84.0	84.5	84.2	--	--	--	--	87*	65*
1955	--	68.8	78.7	81.6	82.1	82.4	83.4	83.3	82.9	84.4	--	--	--	90	62*
Mean	73.3	72.7	76.6	79.1	82.1	83.1	83.4	83.8	83.6	79.6	75.4	74.0	78.9		
Max.	79	79	83	86	88	87	90	87	87	90	85	84		90	
Mean Max.	79.0	77.7	82.5	83.7	86.3	85.3	86.5	86.5	86.8	86.0	84.5	82.5			
Mean Min.	66.0	68.0	66.0	72.3	75.0	78.3	80.2	81.0	80.5	73.0	64.5	65.5			
Min.	64	62	65	67	70	77	78	76	80	67	63	65			62
ACAPULCO, MEXICO															
1950	--	--	--	--	--	84.4	84.1	85.4	84.8	80.6	82.4	79.4	--	88	76*
1951	78.5	79.9	78.8	77.7	80.8	84.3	84.8	85.6	85.3	86.2	85.8	84.7	82.7	88	75
1952	84.0	82.0	79.6	82.2	80.7	80.7	84.3	85.9	85.3	84.9	81.5	81.1	82.7	88	75
1953	80.4	79.5	80.2	80.2	81.9	85.2	86.0	86.7	86.5	84.7	83.9	82.4	83.1	89	76
1954	81.6	81.0	76.1	77.8	78.5	--	--	85.5	84.6	82.9	81.4	--	--	86*	72
1955	--	--	78.6	77.4	83.4	81.3	82.6	84.5	81.0	79.7	78.4	79.1	--	87	74*
Mean	81.1	80.6	78.7	79.1	81.1	83.2	84.4	85.6	84.6	83.2	82.2	81.3	82.1		
Max.	86	85	82	84	86	87	87	89	88	88	87	86		89	
Mean Max.	82.5	83.2	81.0	82.0	83.8	86.2	85.8	87.2	87.0	85.3	84.7	83.4			
Mean Min.	79.5	79.0	75.8	76.0	76.8	79.0	81.6	84.3	81.7	80.3	80.2	78.4			
Min.	77	78	73	72	74	75	78	83	76	74	75	74			72

* Data are incomplete for the part of year in which this extreme occurs. This value is from the months shown.

Table 1.—Surface Water Temperatures—*Continued*

Means and Extremes in °F.

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Means	Max.	Min.
MANZANILLO, MEXICO															
1953	-- -	-- -	-- -	77.6	77.0	80.9	83.5	86.4	-- -	-- -	-- -	82.4	-- -	87*	75*
1954	80.4	81.5	75.4	77.0	77.3	81.8	85.2	86.4	85.9	-- -	80.8	-- -	-- -	88	74
1955	-- -	-- -	-- -	-- -	-- -	80.4	81.4	-- -	83.9	81.4	78.2	75.8	-- -	86*	73*
MAZATLÁN, MEXICO															
1953	72.3	70.2	70.0	71.1	74.5	82.8	85.8	86.3	85.8	83.2	77.8	72.8	77.7	89	66
1954	70.7	72.0	69.7	73.9	75.7	82.9	85.8	86.5	87.0	-- -	79.7	73.4	-- -	90	61
1955	65.7	64.0	70.8	71.8	73.8	81.2	84.0	84.9	84.1	82.5	73.8	65.1	75.1	87	60
Mean	69.6	68.7	70.2	72.3	74.7	82.3	85.2	85.9	85.6	82.8	77.1	70.4	77.1		
Max.	75	76	76	78	79	87	88	89	90	86	84	78		90	
Mean Max.	72.7	72.7	74.7	76.7	78.7	86.0	87.3	88.0	88.3	85.0	82.0	74.7			
Mean Min.	65.3	65.0	64.7	66.3	69.3	76.7	82.7	83.7	80.0	79.0	72.0	64.0			
Min.	60	60	63	66	66	74	80	83	78	79	64	61			60
GUAYMAS, MEXICO															
1950	-- -	-- -	-- -	-- -	-- -	-- -	86.9	88.2	86.8	84.5	72.8	67.1	-- -	90	65*
1951	61.4	63.3	64.7	69.7	76.5	84.7	89.0	88.5	89.4	85.9	77.8	67.1	76.5	98	52
1952	67.1	66.6	64.5	69.8	76.5	84.3	87.4	87.4	87.7	83.5	75.2	61.8	76.0	91	56
Mean	64.2	65.0	64.6	69.8	76.5	84.5	87.8	88.0	88.0	84.6	75.3	65.3	76.1		
Max.	80	72	72	74	87	95	96	98	98	92	84	81		98	
Mean Max.	72.0	68.5	71.0	74.0	84.5	91.0	91.3	92.7	93.0	88.7	81.3	72.3			
Mean Min.	60.0	60.5	59.5	64.5	67.5	79.5	84.3	81.7	84.0	78.3	67.7	57.7			
Min.	60	60	59	64	65	77	84	76	83	76	66	52			52

PUERTO PEÑASCO, MEXICO

1952	-- -	-- -	-- -	-- -	76.5	-- -	82.4	88.4	89.4	84.4	71.3	-- -	-- -	91	--
1953	-- -	-- -	64.8	67.8	72.6	79.0	87.4	88.2	86.8	-- -	71.6	61.3	-- -	90	57*
1954	59.5	63.0	64.5	71.8	77.1	80.4	86.9	87.3	88.3	83.5	73.1	63.4	74.9	90	52
1955	58.2	57.6	62.8	67.2	72.6	78.9	84.4	88.4	86.8	81.8	69.9	63.4	72.7	91	52
Mean	58.8	60.3	64.0	68.9	74.7	79.4	85.3	88.1	87.8	83.2	71.5	62.7	73.7		
Max.	64	66	70	76	80	85	90	91	91	88	80	68		91	
Mean Max.	63.5	64.0	68.3	74.0	78.8	84.0	89.5	90.0	90.0	87.0	78.2	67.3			
Mean Min.	55.0	58.0	60.3	64.0	69.8	73.3	81.5	86.0	84.8	78.3	66.5	56.7			
Min.	52	54	59	62	67	71	78	86	83	77	64	52			52

LA PAZ, MEXICO

1950	-- -	-- -	-- -	-- -	-- -	-- -	78.9	80.8	-- -	83.6	77.7	72.1	-- -	88*	69*
1951	66.3	66.7	67.9	71.5	75.9	78.8	82.7	85.6	84.2	83.0	76.4	70.2	75.8	92	64
1952	67.5	67.0	70.2	71.6	75.7	75.2	81.1	84.3	86.5	85.1	77.8	-- -	-- -	89	65*
1953	-- -	-- -	73.0	72.6	74.2	76.5	81.2	85.3	85.3	83.4	78.2	70.5	-- -	89	66*
1954	66.9	69.0	71.0	73.6	74.0	76.4	82.2	85.5	85.6	81.7	78.8	-- -	-- -	90	62*
1955	-- -	65.9	70.6	72.2	75.3	76.8	77.3	83.8	82.7	79.5	76.4	70.3	-- -	88	62*
Mean	66.9	67.2	70.5	72.3	75.0	76.7	80.6	84.2	84.9	82.7	77.6	70.8	75.8		
Max.	71	72	77	81	82	86	89	92	89	88	83	78		92	
Mean Max.	70.7	71.0	75.8	78.2	81.0	81.8	85.5	88.3	88.4	86.5	81.8	75.8			
Mean Min.	63.7	63.2	66.8	68.8	71.4	71.4	75.5	80.5	81.2	79.5	73.5	67.5			
Min.	62	62	65	66	70	68	72	78	77	77	71	66			62

* Data are incomplete for the part of year in which this extreme occurs. This value is from the months shown.

Table 2.- Sea Water Temperatures from Recording Thermometers

Max. and Min. Obs.=Maximum and minimum observed (from a continuous trace),

Max. and Min. Day=Maximum and minimum daily mean (from hourly readings),

Mean=Monthly mean (from hourly readings).

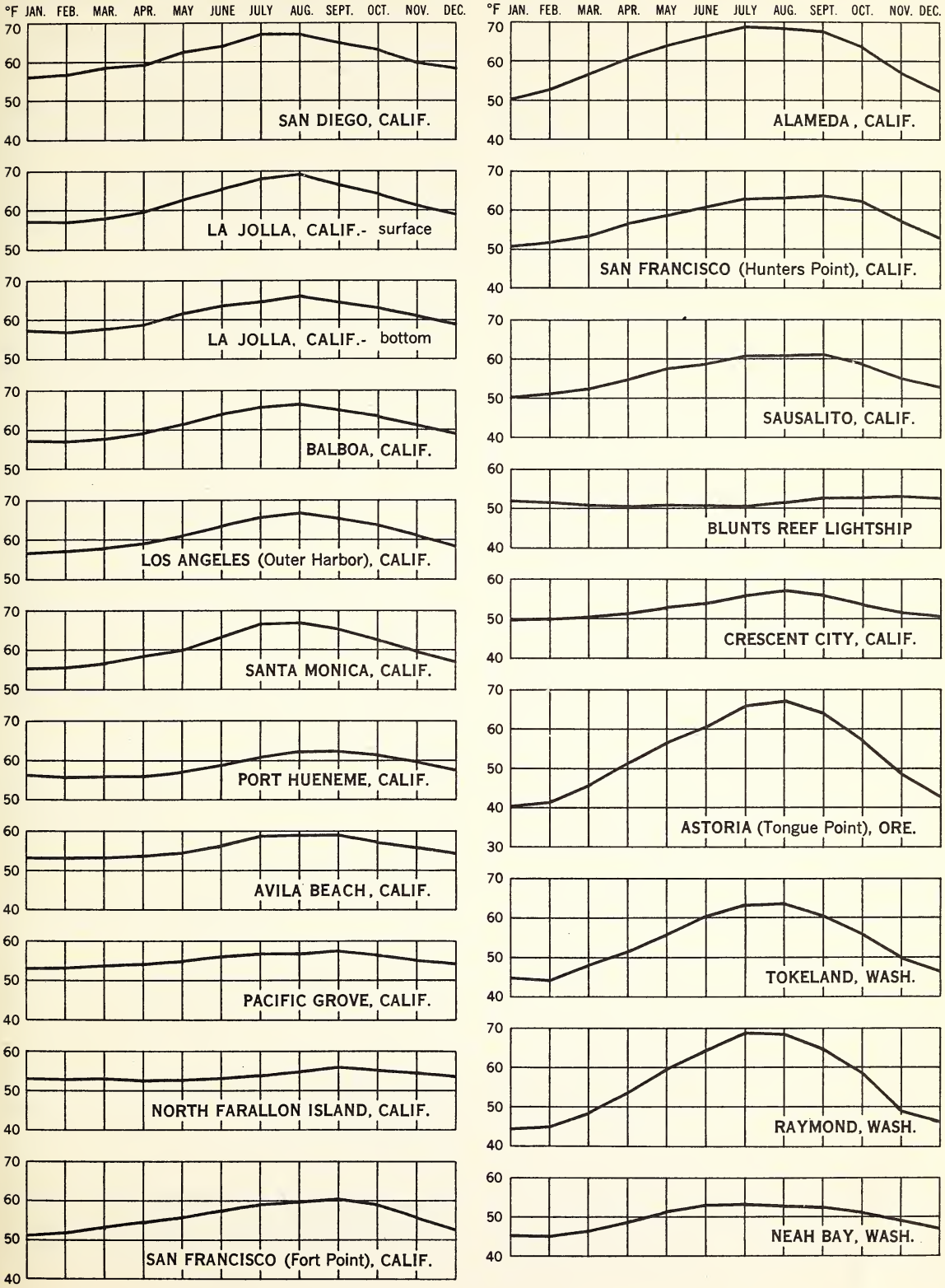
Each bulb was in a fixed position below lowest observed low water.

Temperatures are in °F.

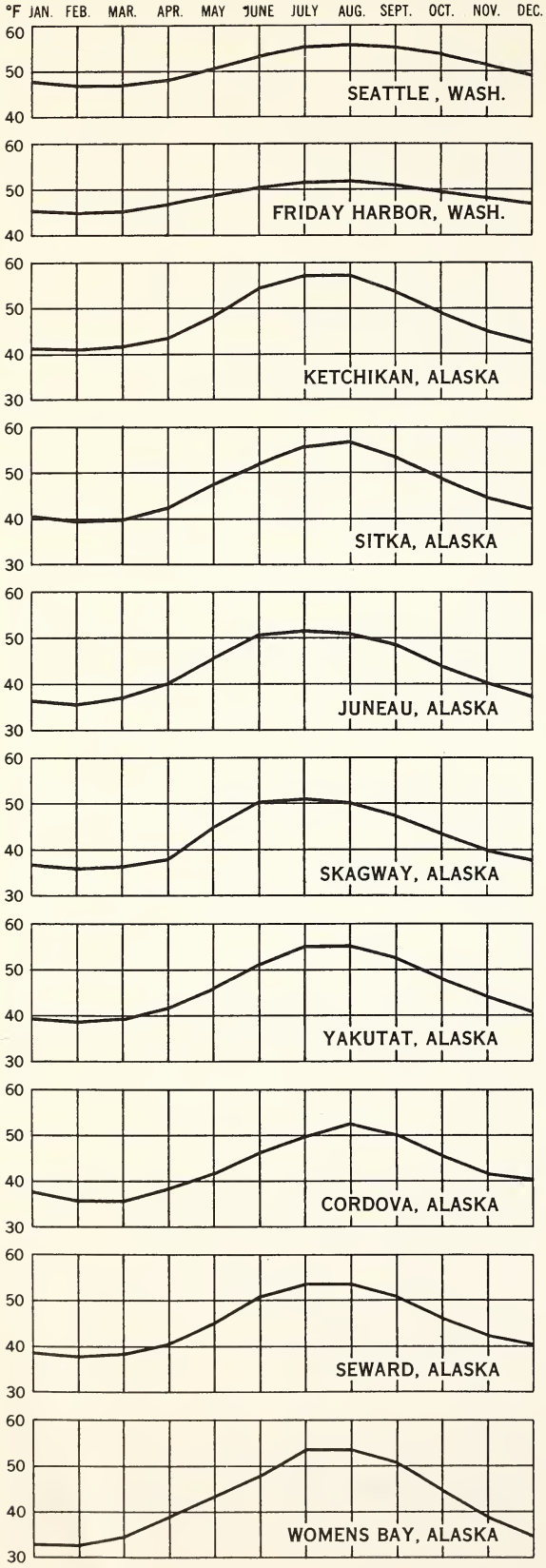
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
						AVILA BEACH, CALIF.						
						1947						
Max. Obs.	--	--	57	60	60	62	61	64	64	61	58	56
Max. Day	-- -	-- -	56.2	57.0	59.1	60.4	58.1	60.9	63.4	59.5	57.0	55.7
Mean	-- -	-- -	54.2	53.5	55.1	57.6	56.9	58.7	59.6	58.1	54.3	54.2
Min. Day	-- -	-- -	52.1	50.8	52.7	54.7	55.9	55.5	56.5	55.9	53.1	53.6
Min. Obs.	--	--	52	50	52	53	54	54	56	55	53	53
						1948						
Max. Obs.	56	56	56	57	58	62	62	63	62	60	58	54
Max. Day	55.1	54.9	54.6	55.3	54.7	61.3	60.2	62.0	61.5	58.6	57.4	53.6
Mean	54.5	53.3	51.9	53.6	52.4	56.2	57.4	59.6	58.5	56.9	55.5	52.5
Min. Day	53.9	50.5	50.6	51.1	50.4	52.8	55.5	57.2	56.0	55.1	53.7	51.7
Min. Obs.	53	50	50	51	50	52	54	56	56	54	53	51
						1949						
Max. Obs.	54	54	58	58	58	60	62	62	63	59	58	57
Max. Day	53.1	53.5	55.9	56.6	56.4	59.5	61.0	61.3	61.8	57.5	57.3	56.3
Mean	51.4	51.8	53.4	54.2	54.3	57.1	57.3	57.7	58.9	55.6	56.4	54.0
Min. Day	50.2	50.9	49.4	-- -	52.3	53.8	53.9	55.2	57.0	54.2	55.4	52.1
Min. Obs.	50	50	48	--	52	53	52	54	56	54	55	52
						1950						
Max. Obs.	--	54	55	56	57	59	62	61	62	58	59	57
Max. Day	-- -	52.9	53.4	55.2	56.2	58.8	60.5	60.3	61.0	57.9	58.5	57.0
Mean	-- -	51.7	51.6	52.8	53.2	54.5	58.6	57.9	58.7	56.4	57.3	55.8
Min. Day	-- -	-- -	49.9	50.3	49.4	50.5	55.5	55.7	55.7	54.9	56.0	54.2
Min. Obs.	--	--	49	50	49	50	55	54	55	54	56	54
						1951						
Max. Obs.	54	55	56	56	--	--	--	--	--	--	--	--
Max. Day	53.2	54.1	54.7	55.7	-- -	-- -	-- -	-- -	-- -	-- -	-- -	-- -
Mean	52.6	52.5	52.1	53.6	-- -	-- -	-- -	-- -	-- -	-- -	-- -	-- -
Min. Day	52.0	51.0	50.5	52.0	-- -	-- -	-- -	-- -	-- -	-- -	-- -	-- -
Min. Obs.	52	51	50	51	--	--	--	--	--	--	--	--
						FRIDAY HARBOR, SAN JUAN ISLAND, WASH.						
						1950						
Max. Obs.	44	42	44	46	49	53	54	--	--	--	49	47
Max. Day	44.0	42.0	43.2	45.1	47.6	48.8	51.2	-- -	-- -	-- -	48.1	47.0
Mean	42.1	41.3	42.7	44.2	46.1	47.8	49.6	-- -	-- -	-- -	47.6	46.8
Min. Day	40.0	40.0	42.0	43.0	45.0	46.8	48.4	-- -	-- -	-- -	47.0	46.0
Min. Obs.	40	40	42	43	45	46	48	--	--	--	47	46

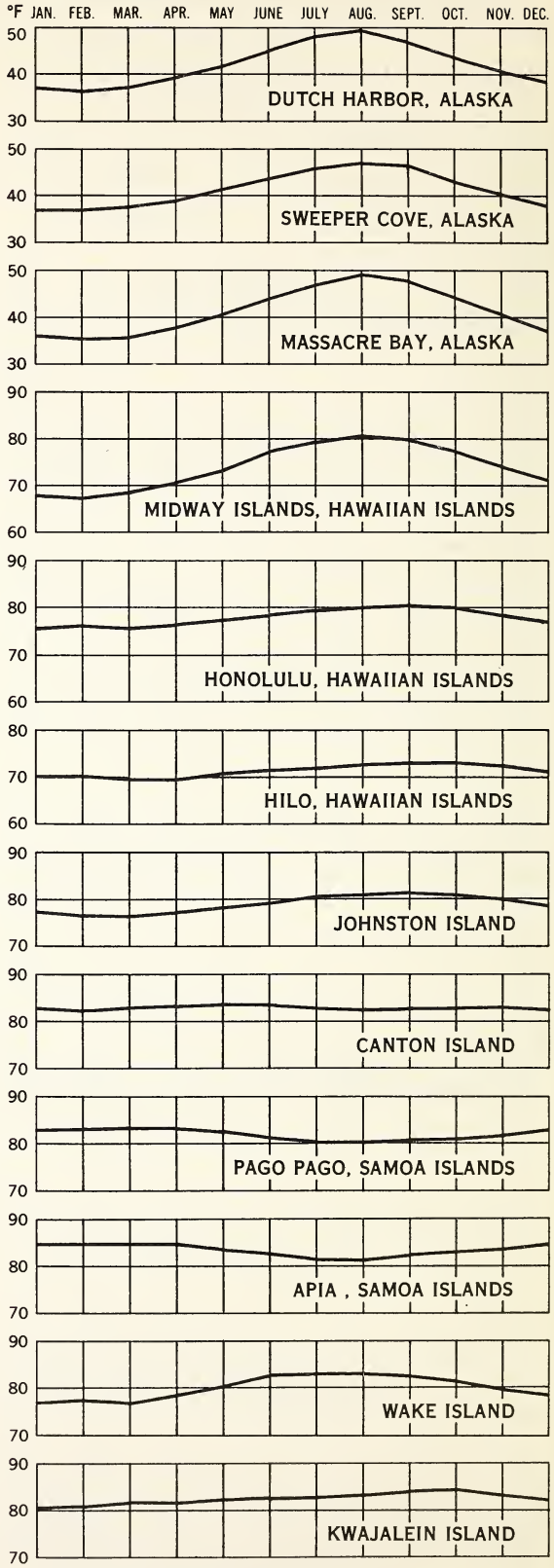
Mean Temperature Curves

Monthly mean surface water temperatures from Table 1 are presented graphically to show the seasonal variation.



Mean Temperature Curves-*Continued*





Mean Temperature Curves-*Continued*

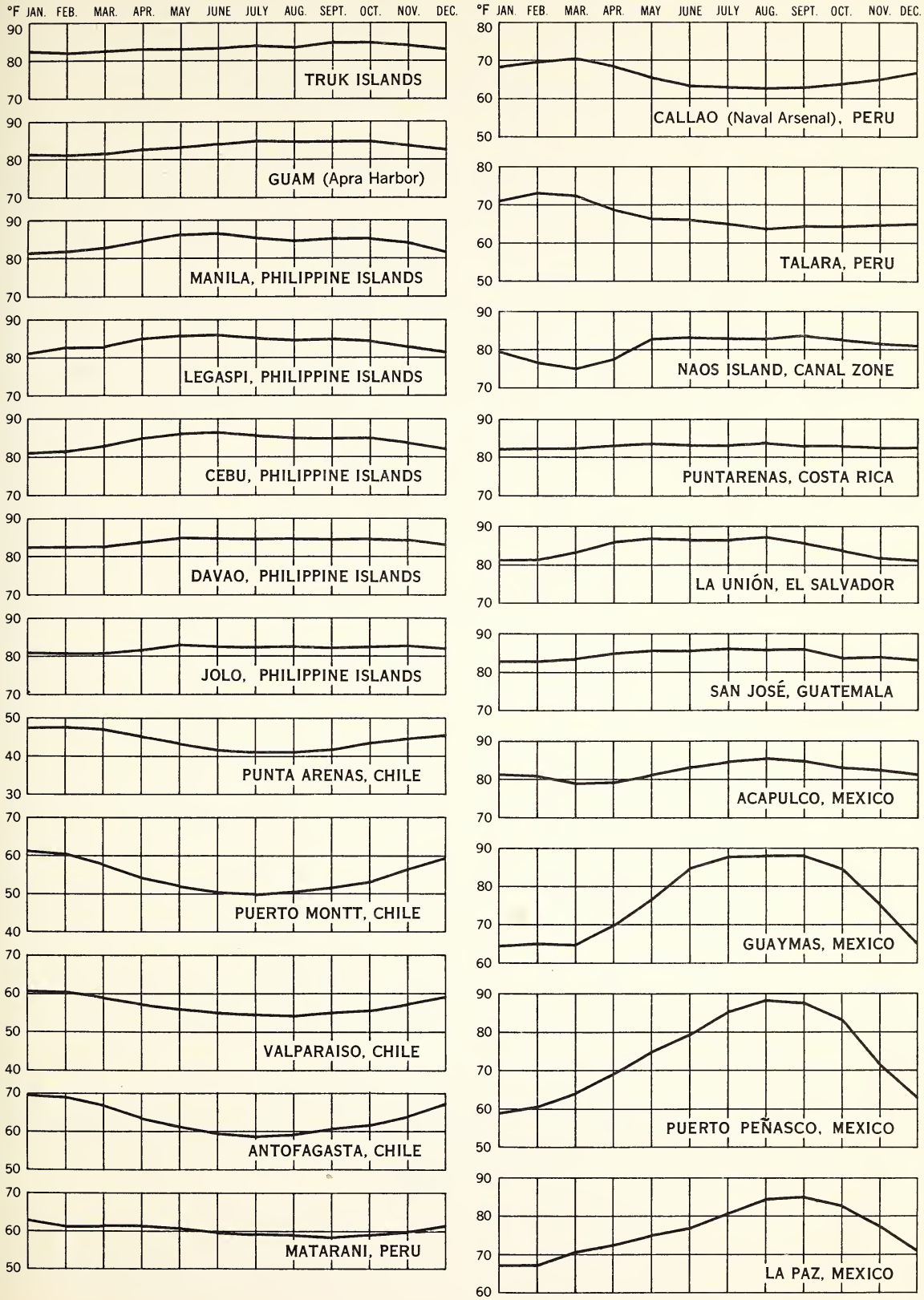


Table 3 - Conversion of Fahrenheit to Centigrade

°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C
25.0	-3.9	35.0	1.7	45.0	7.2	55.0	12.8	65.0	18.3	75.0	23.9	85.0	29.4
25.2	-3.8	35.2	1.8	45.2	7.3	55.2	12.9	65.2	18.4	75.2	24.0	85.2	29.6
25.4	-3.7	35.4	1.9	45.4	7.4	55.4	13.0	65.4	18.6	75.4	24.1	85.4	29.7
25.6	-3.6	35.6	2.0	45.6	7.6	55.6	13.1	65.6	18.7	75.6	24.2	85.6	29.8
25.8	-3.4	35.8	2.1	45.8	7.7	55.8	13.2	65.8	18.8	75.8	24.3	85.8	29.9
26.0	-3.3	36.0	2.2	46.0	7.8	56.0	13.3	66.0	18.9	76.0	24.4	86.0	30.0
26.2	-3.2	36.2	2.3	46.2	7.9	56.2	13.4	66.2	19.0	76.2	24.6	86.2	30.1
26.4	-3.1	36.4	2.4	46.4	8.0	56.4	13.6	66.4	19.1	76.4	24.7	86.4	30.2
26.6	-3.0	36.6	2.6	46.6	8.1	56.6	13.7	66.6	19.2	76.6	24.8	86.6	30.3
26.8	-2.9	36.8	2.7	46.8	8.2	56.8	13.8	66.8	19.3	76.8	24.9	86.8	30.4
27.0	-2.8	37.0	2.8	47.0	8.3	57.0	13.9	67.0	19.4	77.0	25.0	87.0	30.6
27.2	-2.7	37.2	2.9	47.2	8.4	57.2	14.0	67.2	19.6	77.2	25.1	87.2	30.7
27.4	-2.6	37.4	3.0	47.4	8.6	57.4	14.1	67.4	19.7	77.4	25.2	87.4	30.8
27.6	-2.4	37.6	3.1	47.6	8.7	57.6	14.2	67.6	19.8	77.6	25.3	87.6	30.9
27.8	-2.3	37.8	3.2	47.8	8.8	57.8	14.3	67.8	19.9	77.8	25.4	87.8	31.0
28.0	-2.2	38.0	3.3	48.0	8.9	58.0	14.4	68.0	20.0	78.0	25.6	88.0	31.1
28.2	-2.1	38.2	3.4	48.2	9.0	58.2	14.6	68.2	20.1	78.2	25.7	88.2	31.2
28.4	-2.0	38.4	3.6	48.4	9.1	58.4	14.7	68.4	20.2	78.4	25.8	88.4	31.3
28.6	-1.9	38.6	3.7	48.6	9.2	58.6	14.8	68.6	20.3	78.6	25.9	88.6	31.4
28.8	-1.8	38.8	3.8	48.8	9.3	58.8	14.9	68.8	20.4	78.8	26.0	88.8	31.6
29.0	-1.7	39.0	3.9	49.0	9.4	59.0	15.0	69.0	20.6	79.0	26.1	89.0	31.7
29.2	-1.6	39.2	4.0	49.2	9.6	59.2	15.1	69.2	20.7	79.2	26.2	89.2	31.8
29.4	-1.4	39.4	4.1	49.4	9.7	59.4	15.2	69.4	20.8	79.4	26.3	89.4	31.9
29.6	-1.3	39.6	4.2	49.6	9.8	59.6	15.3	69.6	20.9	79.6	26.4	89.6	32.0
29.8	-1.2	39.8	4.3	49.8	9.9	59.8	15.4	69.8	21.0	79.8	26.6	89.8	32.1
30.0	-1.1	40.0	4.4	50.0	10.0	60.0	15.6	70.0	21.1	80.0	26.7	90.0	32.2
30.2	-1.0	40.2	4.6	50.2	10.1	60.2	15.7	70.2	21.2	80.2	26.8	90.2	32.3
30.4	-0.9	40.4	4.7	50.4	10.2	60.4	15.8	70.4	21.3	80.4	26.9	90.4	32.4
30.6	-0.8	40.6	4.8	50.6	10.3	60.6	15.9	70.6	21.4	80.6	27.0	90.6	32.6
30.8	-0.7	40.8	4.9	50.8	10.4	60.8	16.0	70.8	21.6	80.8	27.1	90.8	32.7
31.0	-0.6	41.0	5.0	51.0	10.6	61.0	16.1	71.0	21.7	81.0	27.2	91.0	32.8
31.2	-0.4	41.2	5.1	51.2	10.7	61.2	16.2	71.2	21.8	81.2	27.3	91.2	32.9
31.4	-0.3	41.4	5.2	51.4	10.8	61.4	16.3	71.4	21.9	81.4	27.4	91.4	33.0
31.6	-0.2	41.6	5.3	51.6	10.9	61.6	16.4	71.6	22.0	81.6	27.6	91.6	33.1
31.8	-0.1	41.8	5.4	51.8	11.0	61.8	16.6	71.8	22.1	81.8	27.7	91.8	33.2
32.0	0.0	42.0	5.6	52.0	11.1	62.0	16.7	72.0	22.2	82.0	27.8	92.0	33.3
32.2	0.1	42.2	5.7	52.2	11.2	62.2	16.8	72.2	22.3	82.2	27.9	92.2	33.4
32.4	0.2	42.4	5.8	52.4	11.3	62.4	16.9	72.4	22.4	82.4	28.0	92.4	33.6
32.6	0.3	42.6	5.9	52.6	11.4	62.6	17.0	72.6	22.6	82.6	28.1	92.6	33.7
32.8	0.4	42.8	6.0	52.8	11.6	62.8	17.1	72.8	22.7	82.8	28.2	92.8	33.8
33.0	0.6	43.0	6.1	53.0	11.7	63.0	17.2	73.0	22.8	83.0	28.3	93.0	33.9
33.2	0.7	43.2	6.2	53.2	11.8	63.2	17.3	73.2	22.9	83.2	28.4	93.2	34.0
33.4	0.8	43.4	6.3	53.4	11.9	63.4	17.4	73.4	23.0	83.4	28.6	93.4	34.1
33.6	0.9	43.6	6.4	53.6	12.0	63.6	17.6	73.6	23.1	83.6	28.7	93.6	34.2
33.8	1.0	43.8	6.6	53.8	12.1	63.8	17.7	73.8	23.2	83.8	28.8	93.8	34.3
34.0	1.1	44.0	6.7	54.0	12.2	64.0	17.8	74.0	23.3	84.0	28.9	94.0	34.4
34.2	1.2	44.2	6.8	54.2	12.3	64.2	17.9	74.2	23.4	84.2	29.0	94.2	34.6
34.4	1.3	44.4	6.9	54.4	12.4	64.4	18.0	74.4	23.6	84.4	29.1	94.4	34.7
34.6	1.4	44.6	7.0	54.6	12.6	64.6	18.1	74.6	23.7	84.6	29.2	94.6	34.8
34.8	1.6	44.8	7.1	54.8	12.7	64.8	18.2	74.8	23.8	84.8	29.3	94.8	34.9

$$^{\circ}C = \frac{^{\circ}F - 32}{1.8}$$

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